English

UCam247-HDO
User Manual

Weatherproof Outdoor HD WiFi IP Network Camera

Please read this manual carefully before you attempt to install this product and retain it for your future reference.

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INTRODUCTION

Thank you for your interest and support in our product and purchasing this wireless network camera. The camera can be accessed remotely, and controlled from any PC/laptop over the Intranet or Internet via web browser. The user-friendly installation procedure and intuitive web-based interface offer easy integration with your LAN environment or WiFi system. The camera also comes with a lot of useful alarm tool for notice user any situation. We feel confident that you will be pleased with the quality and features of this product.

Notice

This product may cause interferences with other wireless equipment that operates at 2.4GHz ISM band. Please turn off one of the equipments to eliminate the interference.

Product Assurance

This camera will emit electromagnetic wave, just like other wireless products, but its transmitting power is less than other wireless products such as mobile phones. The 2.4GHz wireless camera meets wireless frequency security standards and recommended indexes while working. These standards and indexes are certificated by academic organization and represent the cogitative research of the scientific workers who continuously explore and annotate the involved fields. So we believe that our products are safe for customers**.**

Approval Information

All our products meet the requirements of approval FCC or CE, and are granted the FCC or CE certification. They are authorized to bear FCC or CE mark.

FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: -Reorient or relocate the receiving antenna. -Increase the separation between the equipment and the receiver. -Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. -Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1(1) This device may not cause harmful interference, and
2(2) this device must accept any interference received, including interference that may cause undesired operation Changes and modification not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commissions rules.

CE

This product complies with standards including Low Voltage Device Directive 73/23/EEC; EMC Directive 89/336/EEC and R&TTE Directive 1999/5/EC. It passed the subject tests by the authority concerned and is authorized to bear CE mark.

Restrictions

1. DO NOT use this product to violate one's privacy. Monitoring one's activities without consent is illegal and this product is not designed and manufactured for such purpose**.**
2. DO NOT put this product near any medical equipment. Radio waves might potentially cause breakdown of electrical medical equipment.
3. This product should be placed at least 1 foot away from any heart pacemaker. Radio waves might

potentially influence heart pacemaker.

4. DO NOT use this product for any illegal activities. **It is the user's responsibility to ensure that the usage of this camera is of a legal nature.**

Maintenance

1. Ensure that the camera and its power source have sufficient ventilation;
2. Do not shake**,** strike or drop the product;
3. Keep the camera dry and dustless and avoid exposing it to direct sunlight;
4. Do not place the product near any magnetic objects;
5. Avoid putting the product in places where there is constant temperature and humidity change;
6. Keep the product away from heat sources;
7. Do not use the camera near aggressive chemicals;
8. Do not use this camera near water;
9. Do not use the camera in the places which are enclosed by metal. The surrounding metal may shield the electromagnetic wave**s**, and result in failure of signal reception;
10. Please obey the local government's environment protection policy;
11. Please turn off the power when left unused;
12. Do not disassemble or attempt to repair the camera; doing so might cause damage to the product.

MAIN FEATURES

Easy Installation

The camera comes with built-in Wireless (IEEE802.11b/g/n) capability and a Web Server, therefore there is no need to install a driver. The setup includes the Camera Setup software, User Manual and Quick Installation Guide.

With industry standard automatic configuration - UPnP(Universal Plug and Play), your PC will discover and connect to your camera automatically. Once connected, using a simple Web browser you can see what the camera sees from anywhere in the world!

The camera can be either wall-mounted or ceiling-mounted using the supplied stand. It can also be placed on a desktop using the supplied stand, thus providing a flexible installation solution.

802.11b/g/n Wireless LAN Connection Available

The camera is designed to not only work with your existing wired network but also with standard 802.11b/g/n wireless devices, allowing the flexibility to operate the camera wirelessly. The camera utilizes SSID filtering, powerful 64/128 bit WEP and new security standard WPA encryption to protect you from illegal intrusion.

3GPP Mobile Surveillance

The camera provides the ability to view the cameras monitored through your mobile phone as a live video stream, it supports the telecommunications standard of 3GPP streaming format. All 3G enabled mobile devices and most 2G phones that support the streaming standard of 3GPP are compatible.

Simultaneous High-Speed MPEG-4 and Motion JPEG

The camera allows live the MPEG-4 and Motion JPEG streams simultaneously. The camera features H.264/MPEG4 compression which compresses the video to make transmission faster and more efficient. The H.264/MPEG4 and MJPEG image can be transmitted at 30 frames per second.

Simultaneous HTTP and RTSP streaming

The camera support HTTP and RTSP/RTP/RTCP protocol, and provide multiple HTTP and RTSP streams simultaneously.

Audio Transmission

The camera comes with a built-in microphone for audio monitoring as well as video monitoring. Sound captured by the camera is transmitted to the client's PC.

Snapshot and Recording

You can capture a still image of the camera view on your PC and save the image as JPG or BMP format file. You also can record the video and audio captured by the camera on your PC and save as an ASF format file.

Motion Detection Function

The camera can detect changes in the image being monitored. Once a change occurs it will send an email to up to 3 email addresses with a video file or snapshot attached. The video file or snapshot can also be uploaded to an FTP server. In addition the camera can be configured to send images at regular intervals.

OSD Function

OSD (On Screen Display) function can display system name, date and time, and user-defined on screen.

Authentication

An authentication window requires you to enter the user ID and password. Password security can prevent unregistered users from accessing your camera. Users can select Basic Authentication method or Digest Access Authentication method.

Multi-Client Access

The camera allows up to 16 users to view the video simultaneously. Please note that it is possible that as the number of simultaneously connected users to camera increases, the overall motion performance will decrease.

Infrared Night Vision (IR IPCAM)

The camera utilizes 30 infrared LED to provide high light in darks environment. When the environment is dark, the LED will be opened automatically due to a photosensitive component, and the moving images will be changed to Black and White. Users can monitor clearly the things within 15 meters distance. Users also can select open or close the infrared LED manually, and select whether change the images to black and white or color automatically.

Adapter

This product conforms with the authenticated AC adapter. The adapter is marked with one or more of the following:

UL Mark
American power supply authentication

SAA Mark
Australia power supply authentication

CE Mark
European Union power supply authentication

PSE Mark
Japan power supply authentication

GS Mark
German power supply authentication

CCC Mark
China power supply authentication

Note: *When using the power adapter, make sure the rating voltage on it is compatible with that of the device to avoid potential damages resulting from incorrect usage of power supply.*

PC System Requirements

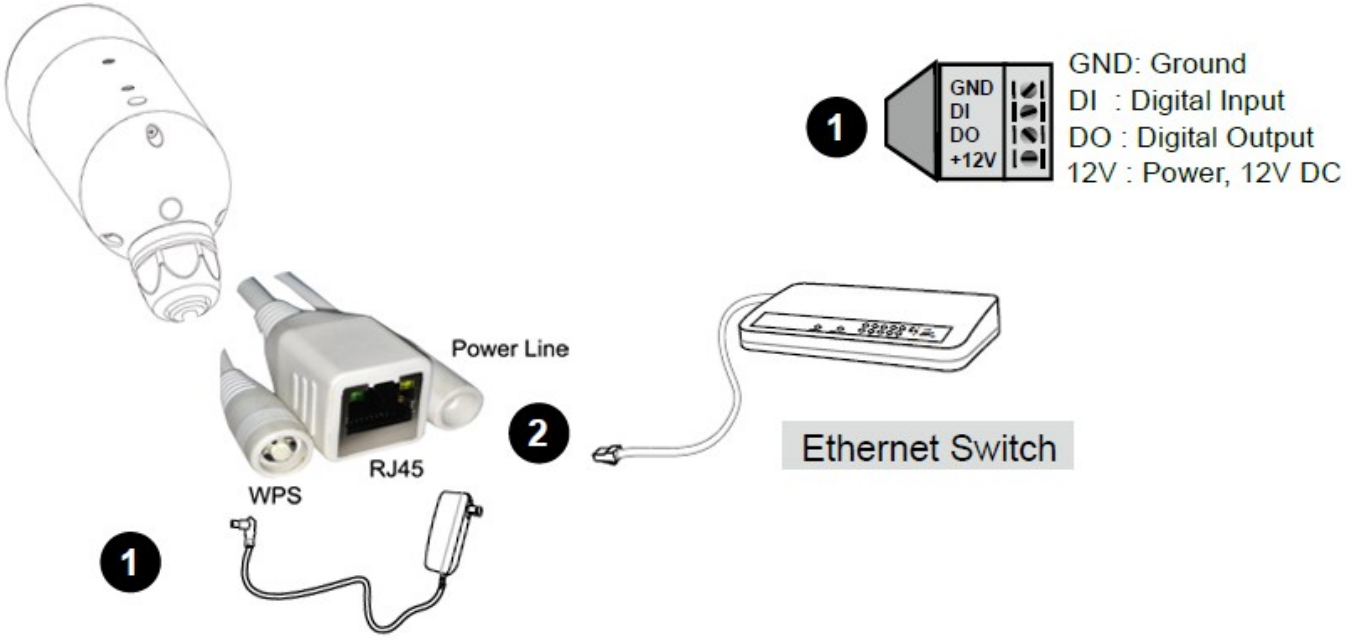
The PC (Personal Computer) and the network must meet the following technical specifications for camera to work properly.

1. Processor: Intel Pentium III, 1GHz or Higher (Pentium IV, 2 GHz or Higher recommended)
2. RAM: 256 MB or more
3. Color Monitor: Suggest at least 800x600 and the latest driver for the Display Adapter
4. OS(Operating System): Windows 2000/XP/Vista
5. Web Browser: Internet Explorer Version 5.0 or above, DirectX 9.0c or later
6. Network Protocol: TCP/IP network protocol installed
7. Interface: 10/100 Mbps Ethernet® card/Wireless Network card for your network connection
8. Other: CD-ROM Drive

INSTALLATION

Setting up the Network Camera over the Internet

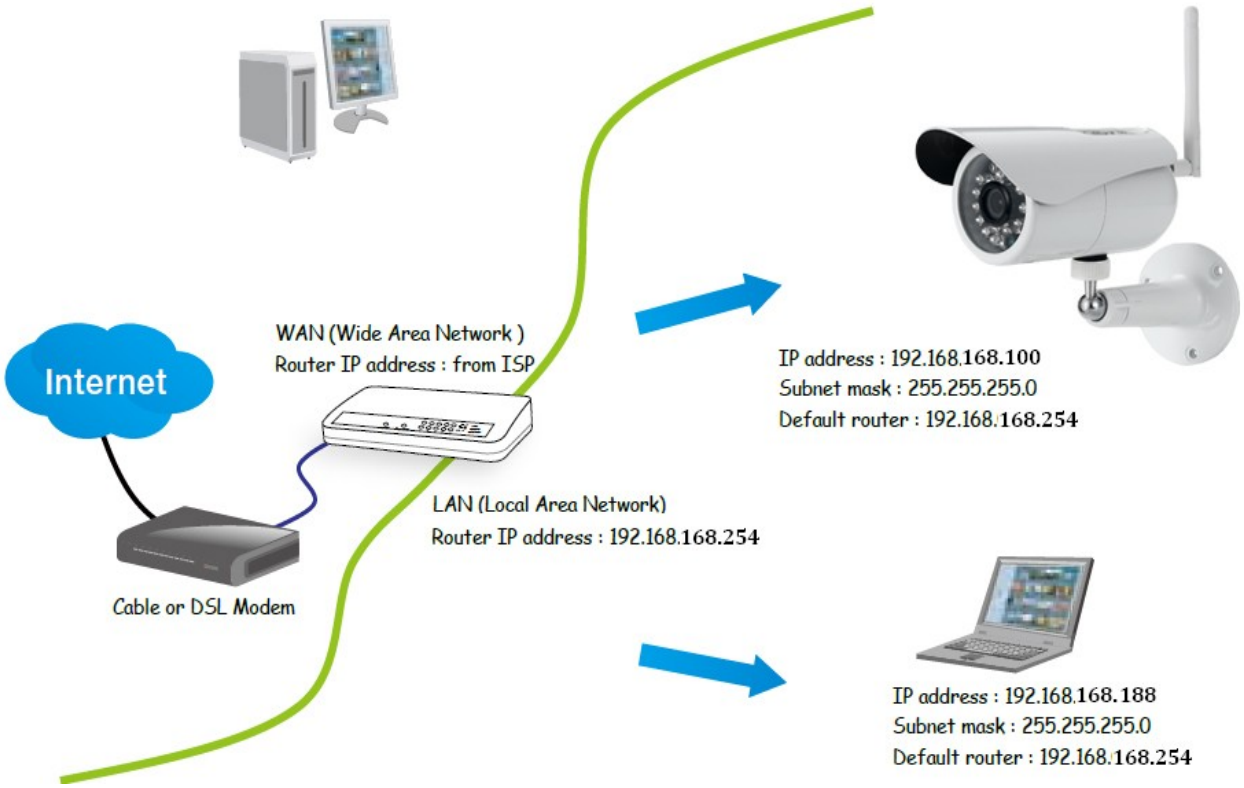
This section explains how to configure the Network Camera to an Internet connection.
1. If you have external devices such as sensors and alarms, make the connection from the general I/O terminal block.
2. Use the supplied RJ45 female/female coupler to connect the Network Camera to a switch.use Category 5 Cross Cable when Network Camera is directly connected to PC.
3. Connect the power cable from the Network Camera to a power outlet.



There are several ways to set up the Network Camera over the Internet. The first way is to set up the Network Camera behind a router. The second way is to utilize a static IP. The third way is to use PPPoE.

Internet connection via a router

Before setting up the Network Camera over the Internet, make sure you have a router and follow the steps below.
1. Connect your Network Camera behind a router, the Internet environment is illustrated below.
Regarding how to obtain your IP address, please refer to on page 20 for details.


Internet
WAN (Wide Area Network)
Router IP address : from ISP
Cable or DSL Modem
LAN (Local Area Network)
Router IP address : 192.168.168.254
IP address : 192.168.168.100
Subnet mask : 255.255.255.0
Default router : 192.168.168.254
IP address : 192.168.168.188
Subnet mask : 255.255.255.0
Default router : 192.168.168.254

2. In this case, if the Local Area Network (LAN) IP address of your Network Camera is 192.168.168.100, please forward the following ports for the Network Camera on the router.

- HTTP port
- RTSP port
- RTP port for audio
- RTCP port for audio
- RTP port for video
- RTCP port for video

If you have changed the port numbers on the Network page, please open the ports accordingly on your router. For information on how to forward ports on the router, please refer to your router's user's manual.

3. Find out the public IP address of your router provided by your ISP (Internet Service Provider). Use the public IP and the secondary HTTP port to access the Network Camera from the Internet. Please refer to Network Type on page 34 for details.

Internet connection with static IP

Choose this connection type if you are required to use a static IP for the Network Camera.please refer to LAN on page 36 for details.

Connecting the camera

Using a standard Ethernet network cable, connect the camera to your network (depending on your own setup, this may be to your router or switch). *see figure below*

Connect the included power adapter to the power port on the camera and the other end into an electrical socket. *see figure below*

Check that the power indicator is lit on the front of the camera.

Note:
Please handle the power adapter carefully to avoid the risk of accidental electric shock.

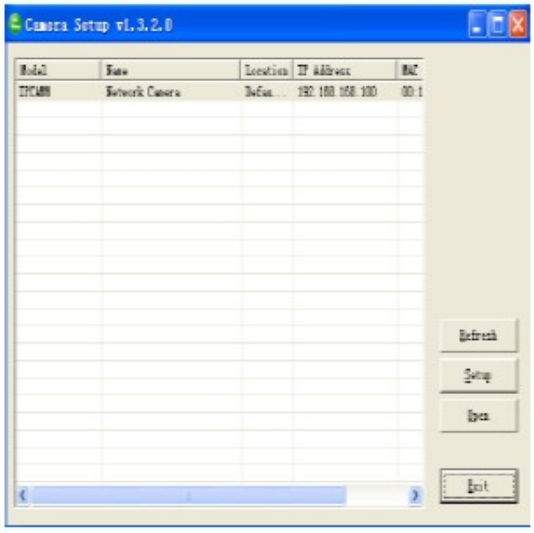
Camera Setup Installation & Usage

There are various ways to locate a camera on your network to access its advanced features and functions.

If you have a **Windows PC** download and run the **Setup Utility** (which you can get from the **Help** section at www.ucam247.com) to find the camera quickly and easily. If you are using a **Mac** you can download Network Device Finder software from http://www.bensoftware.com/networkdevicefinder/

See the following examples for what you should see when you run the Windows or Mac utilities respectively:

(Windows version of setup wizard)

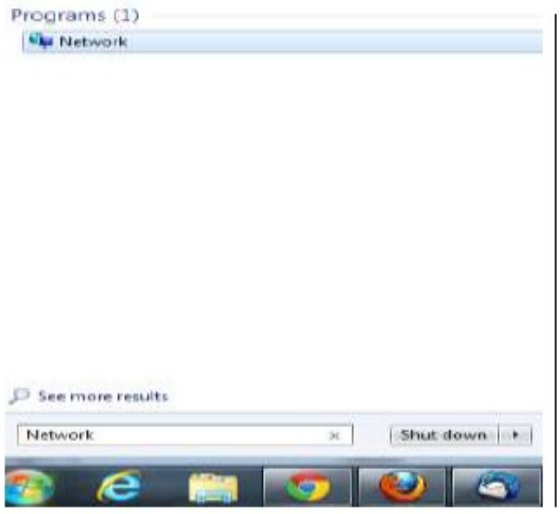


(Mac version of device finder)

Just note the ip address of the camera (e.g. 192.168.1.100) and enter this into your web browser – e.g. http://192.168.1.100 and that should bring up the camera's full web interface. See step 2 for more.

Or, you can use the PC direct method:

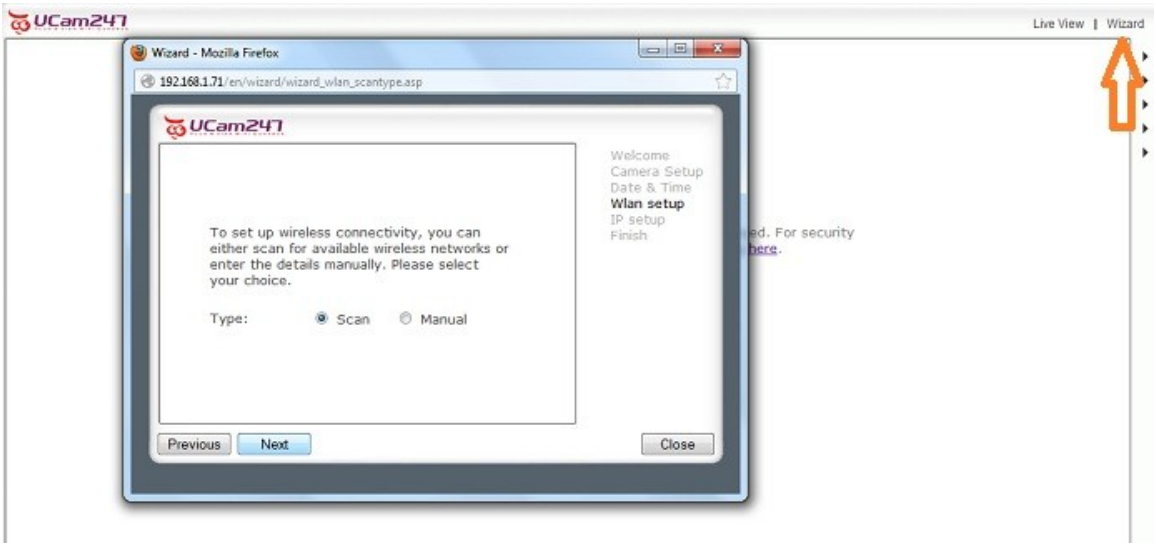
If you are using **Windows Vista, 7 or 8** you can access the camera quickly by running the **Network** program from the **Search** bar in the Start menu:



Now just double click the icon (NC328W-IR) and that will open the camera's web interface in your browser.

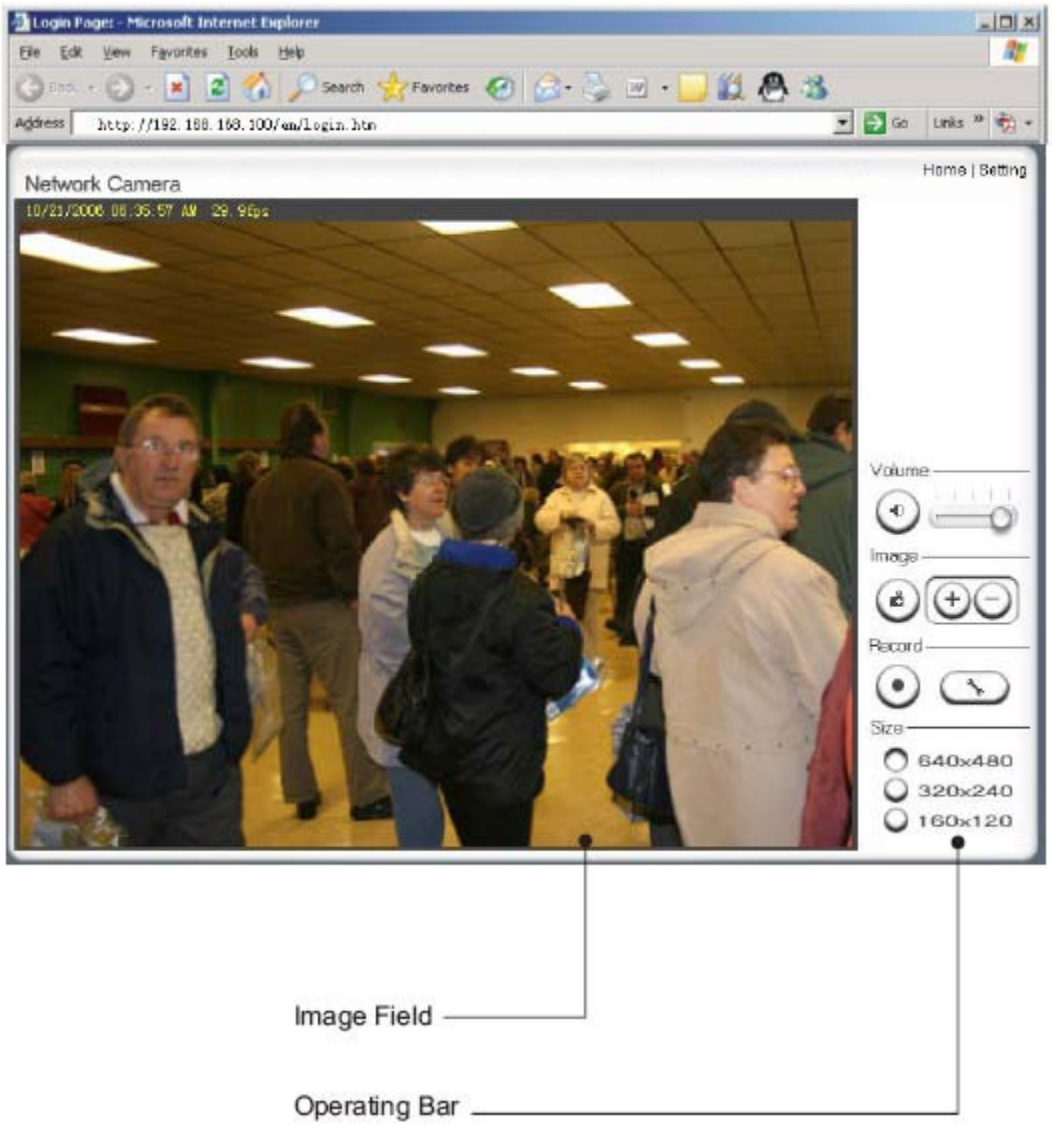
2. Whichever method you use the above you should now have the camera's ip address (e.g. 192.168.1.100) and the first thing to do is open a web browser on your computer and enter this ip address into the address bar (i.e. where you would type in a website address) as http://192.168.1.100 and hit enter. You should now be at the camera's web interface splash page:

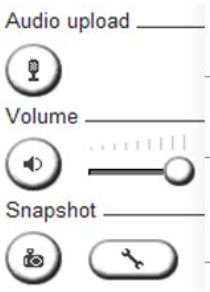
3. To view the live stream from your camera click **Enter**. To make changes (e.g. to setup the camera now to work over WiFi) click **Setting**. The default login in both cases is **admin** for User Name and **admin** for Password. Now here you have a choice. You can either use the **Wizard** to run through the **Wi-Fi** set up or use the step by step process detailed in the rest of this guide.



Operating Bar (only applies to Internet Explorer)

Click **Enter**, you will see the screen.





(1) Mute

1.1) **Audio Upload: Upload the audio that captured from PC.**

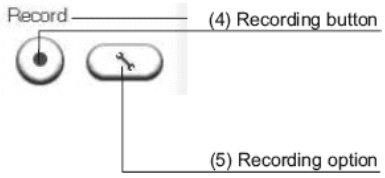
1.2) **Adjust the Volume of the camera.**

(2) Snapshot

Press the **Snapshot** button to capture a still image of the camera view.

Click **Save** to store the snapshot on your computer, the file is automatically assigned the data & time of the snapshot.

Press **Cancel** to exit.

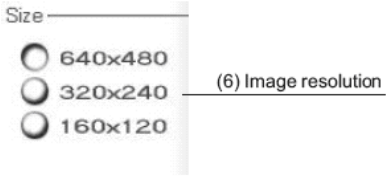


(4) Recording:

Press the **Record** button to record video and audio (if enabled). This will save the file in ASF format on your PC.

(5) Recording option:

Click this button to set the recoding parameters. You can set record path, video file size and select whether to start recording automatically when motion is detected and the length of the recording in seconds.



(6) Image size:

There are three Image Size options: [640x480],[320x240] and [160x120]. Please note that this only changes the image size being viewed not the image size the camera is transmitting and/or recording. To change the transmitting/recording image size please refer to Camera Setup(page 20).

Viewing the camera from your mobile devices.

View in the mobile website browsers.

Input “**DDNS + /mobile**” For example “**183.14.122.239:8150/mobile**”.
Then you can view fluent videos or images which change every 3 seconds.

iOS requires iOS4.3 version or later.
Android OS requires version2.3 or later.

View on iPhone, iPad, Android devices.

View on Android

Install software “**P2PCam 264**”
Open it, you’ll see:

Type the **UID** or **Scan** the **UID**. Input **password**, and **name**.Then click “**Save**”.

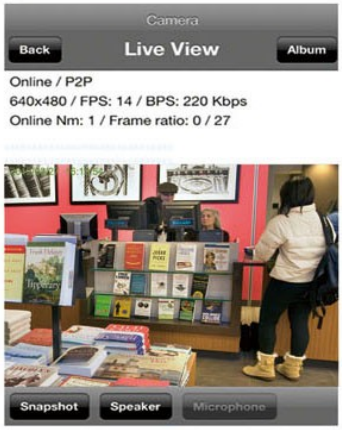
For snapshots For hearing the voice
For back to manu.

View on iPhone, iPad

Install software “**P2PCam 264**”
Open it, you’ll see:

Click “ **QRCode** ” to scan **UID**.
Click “ **Add** ” to manually input **UID**.

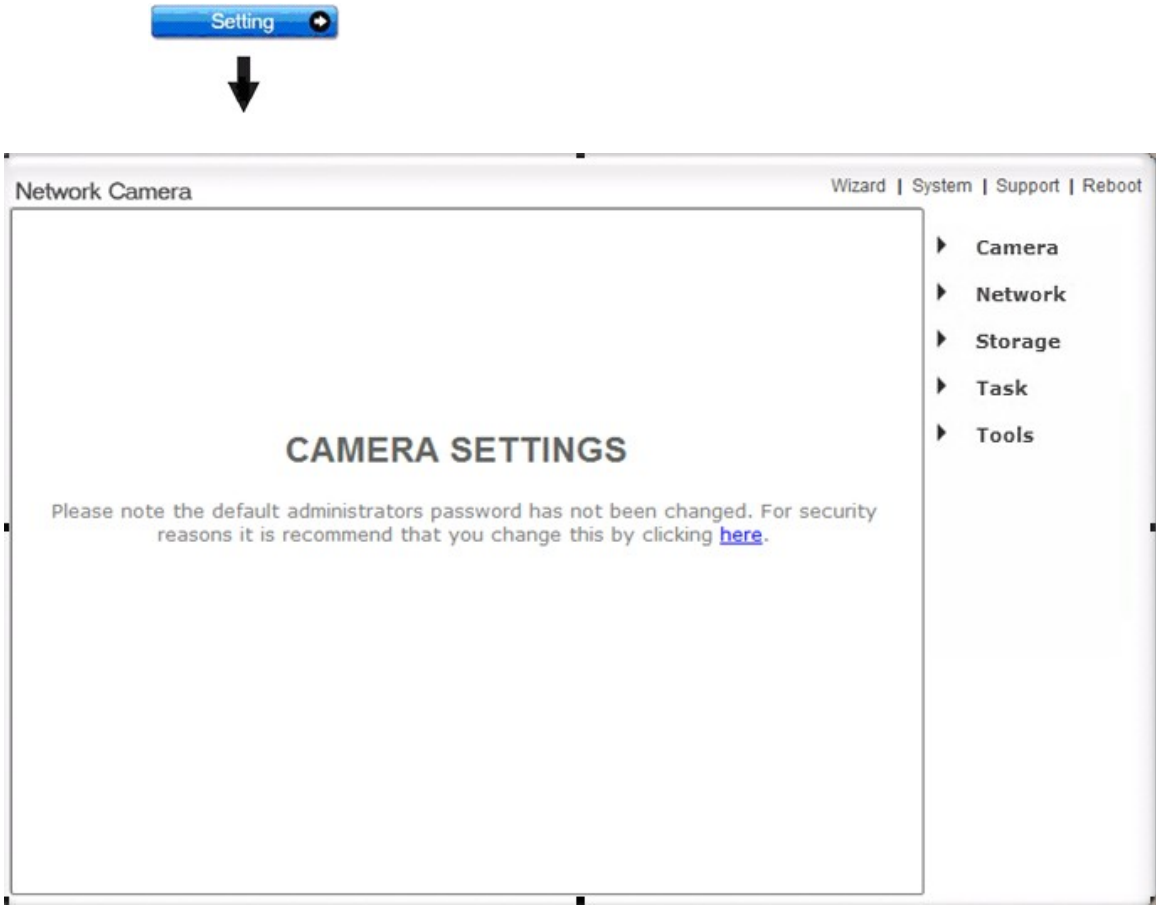
Input “ **UID** ” and “ **Password** ”.
Then you’ll see:



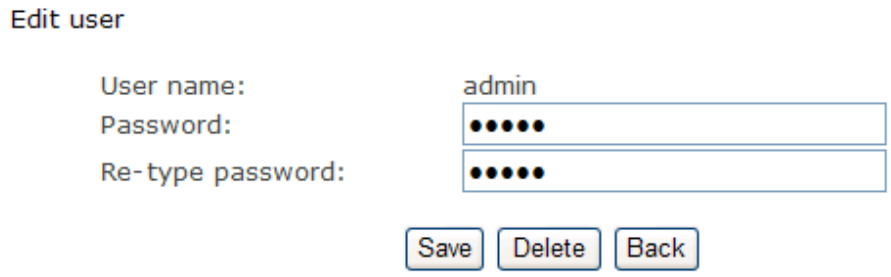
“ **Snapshot** ” for getting pictures.
“ **Speaker** ” for hearing the voice.

Network Camera Setting Interface

1. Click on **settings** from the home page. When connecting the camera for the first time or after resetting it to its default settings, the setup interface start page below will load. It is recommend that you change the **admin** password in order to avoid unauthorized access to the camera. To do this follow the instructions by clicking on the underlined link “here” to access administrator password editing page.


Setting
Network Camera
Wizard | System | Support | Reboot
Camera
Network
Storage
Task
Tools
CAMERA SETTINGS
Please note the default administrators password has not been changed. For security reasons it is recommend that you change this by clicking here.

2. Type the password in both fields then click **Save**. Please take note of the password. If you forget the password, the camera will have to be reset to its default settings in order to gain access to the settings page and this will also reset all other settings you may have changed.



3. You are required to re-login with the changed password.

Enter Network Password
This secure Web Site (at 192.168.168.100) requires you to log on.
Please type the User Name and Password that you use for Webs.
User Name
admin
Password
Save this password in your password list
OK
Cancel

After successful login, the following page will appear.

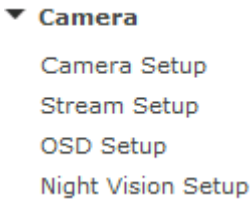
*** User modified successfully!**

Camera user list

No.	User name	Group
1	admin	Administrators

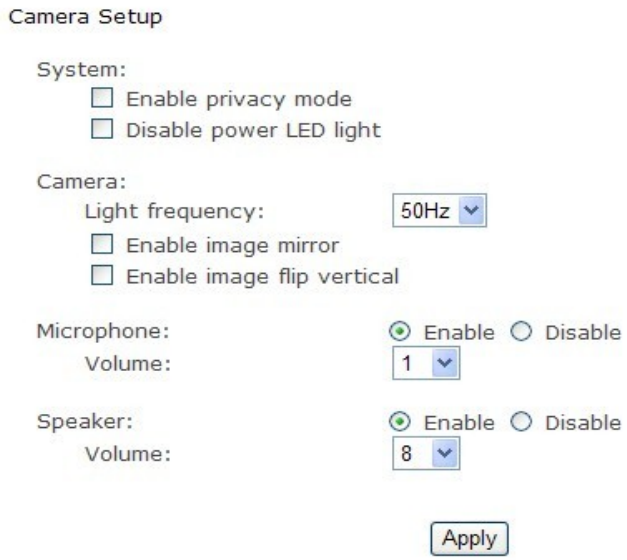
Add

Camera



Camera Setup

From the home page click **settings** and enter the administrator user name and password. Click on **Camera Setup** under the title **Camera** to change the image and audio parameters of the camera.

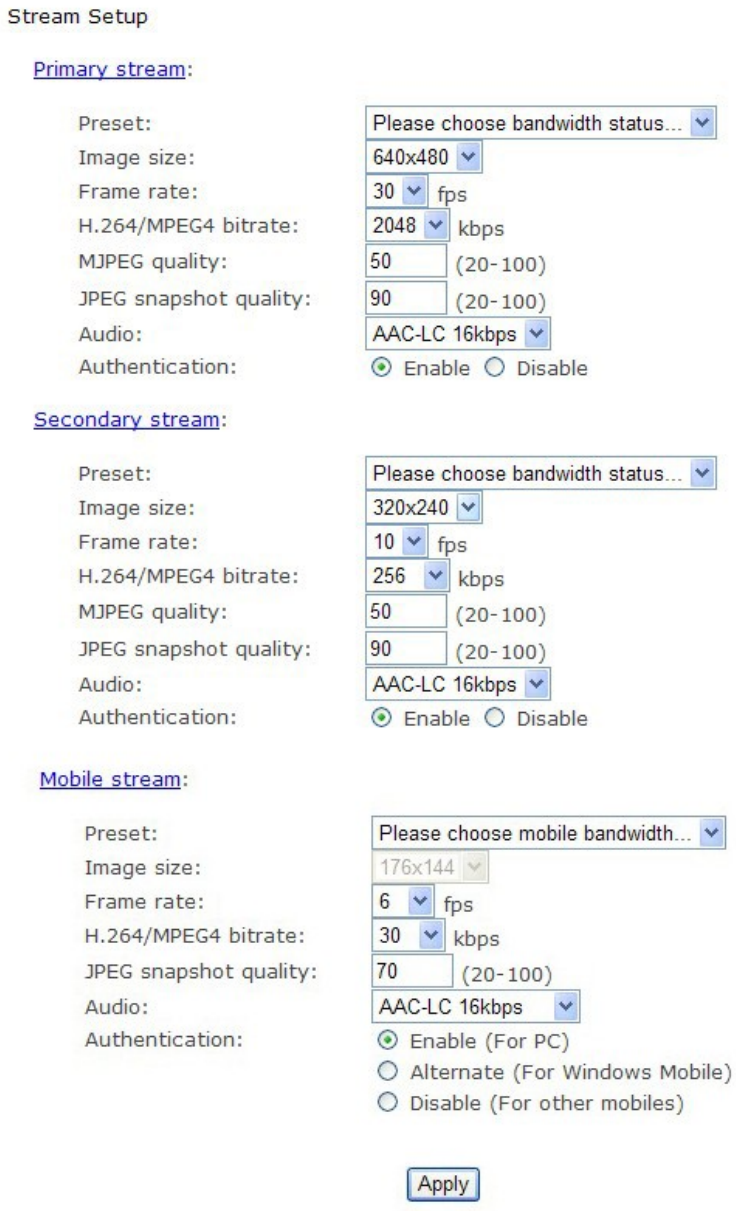


[Enable privacy mode] Videos will not be seen.
[Light frequency] Two options: 50Hz & 60Hz. Set according to the mains frequency in the country of use. *For UK this would be 50Hz.*
[Microphone] Enable or disable the microphone.
[Speaker] Choose to allow speaker function. And choose the volumn of the speaker.

Click **Apply** to confirm your settings.

Stream Setup

The camera supports three streams: primary stream, secondary stream and mobile stream.



[Image size] Three image resolutions available: 640 x 480(VGA), 320 x 240(QVGA), 160 x 120.
[Frame rate] Twelve options: 1/2/3/4/5/6/8/10/15/20/25/30 frames per second **(**fps**).**
[H.264/MPEG4 bit rate] Select H.264/MPEG4 bit rate.Eight options: 64, 128, 256, 512, 768, 1024, 1536, 2048 (kbps).
[JPEG quality] Type MJPEG video quality. (20 – 100), 20 is low quality, 100 is high quality.
[Audio] Enable or disable audio.
[Authentication] Enable or disable.

A stream list page will be shown after clicking the stream name such as “Primary stream”.

[Primary stream] can not be disabled.
A sample of primary stream list as below:

Primary Stream List

Intranet stream URL	
RTSP H.264 stream:	rtsp://192.168.168.215/live/0/h264.sdp
RTSP MPEG4 stream:	rtsp://192.168.168.215/live/0/mpeg4.sdp
RTSP MJPEG stream:	rtsp://192.168.168.215/live/0/mjpeg.sdp
RTSP audio stream:	rtsp://192.168.168.215/live/0/audio.sdp
HTTP M3U8 stream:	http://192.168.168.215/live/0/h264.m3u8
HTTP MJPEG stream:	http://192.168.168.215/live/0/mjpeg.jpg
HTTP ASF stream:	http://192.168.168.215/live/0/mpeg4.asf
HTTP snapshot image:	http://192.168.168.215/live/0/jpeg.jpg
Internet stream URL	
UPnP port forwarding is not enabled, or Gateway does not support UPnP.	

Back

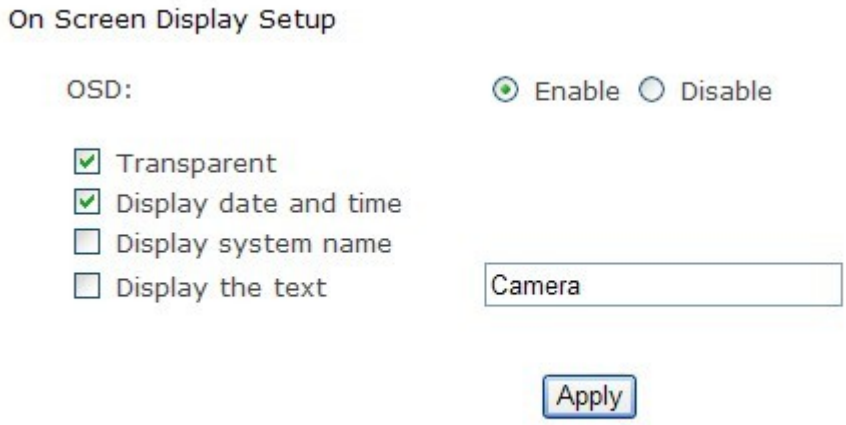
You can use RealPlayer, VLC Player or QuickTime Player to play the live stream from camera in Intranet or Internet.

[Secondary stream] Enable or disable secondary stream.

[Mobile stream] Enable or disable Mobile stream.
You can use mobile phone, Realplayer and QuickTime Player to play the live stream from camera.
The size of video is 176x144.

OSD Setup

This function can display system name, date and time, or use-defined on screen.

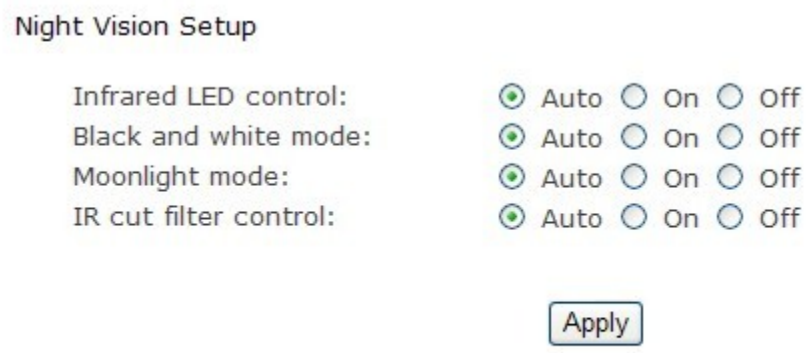


[OSD] Enable or disable OSD function.
[Transparent] Users can select whether change OSD to transparent or not.
[Display date and time] Show date and time of the camera.
[Display system name] Show the system name of the camera.
[Display the text] Show the defined text on the screen.

Click **Apply** to confirm your settings.

Night Vision Setup (IR IPCAM)

Only IR IPCAM have infrared LED, which can be activated automatically when environment is dark.



[Infrared LED control] When the environment is dark, the LED will be activated automatically due to a photosensitive component. If not going to select the black and white mode, the night vision color looks like purple.

[Black and white mode] When the environment is dark, the moving images will be changed to Black and White automatically. Users also can select whether change the images to black and white or color manually.

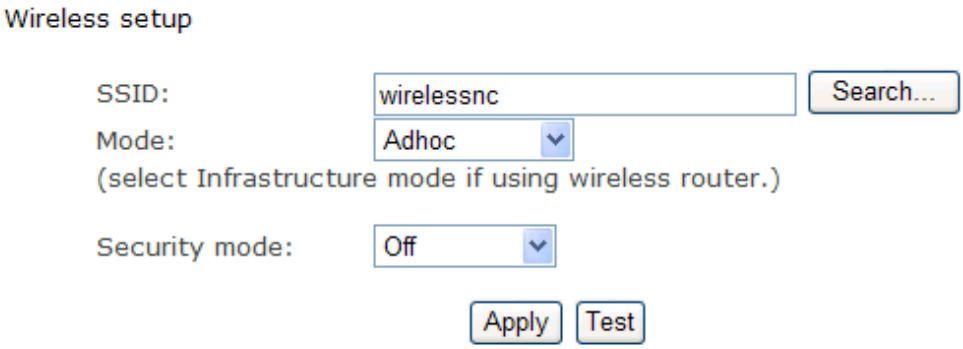
[IR cut filter control] Click to choose Auto, on or off. The IR Cut filter makes the images color more real.

Click **Apply** to confirm your settings.

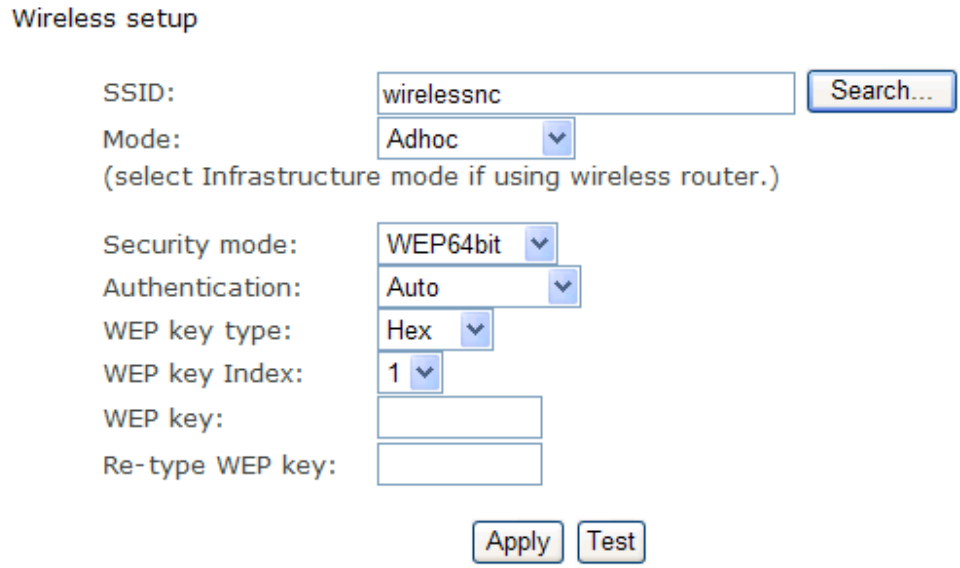
Network

Wireless Setup

The camera corresponds to the wireless system based on IEEE802.11b/g/n. Encryption establishes the security to prevent unauthorized users to access the wireless data communication.

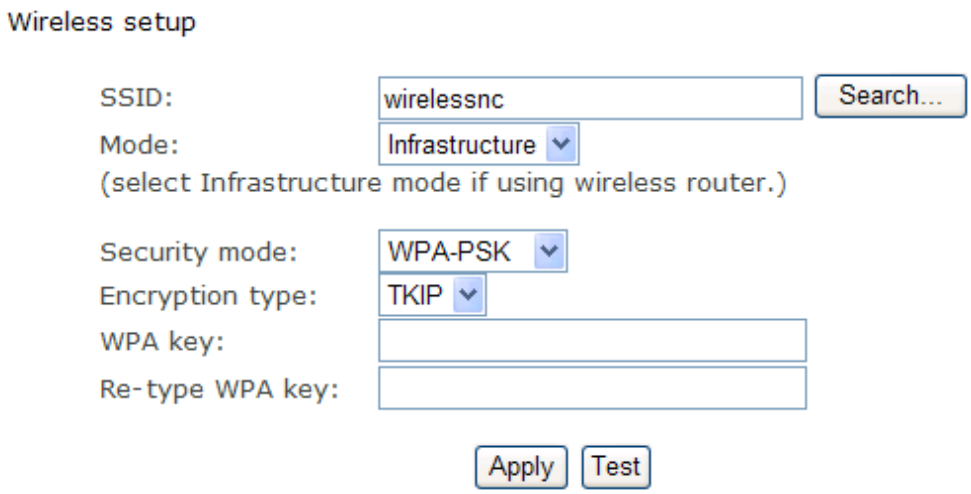


[SSID] Click **Search** and choose your router.
[Mode] and [Security Mode] As default. (Auto Set, once select the router.)



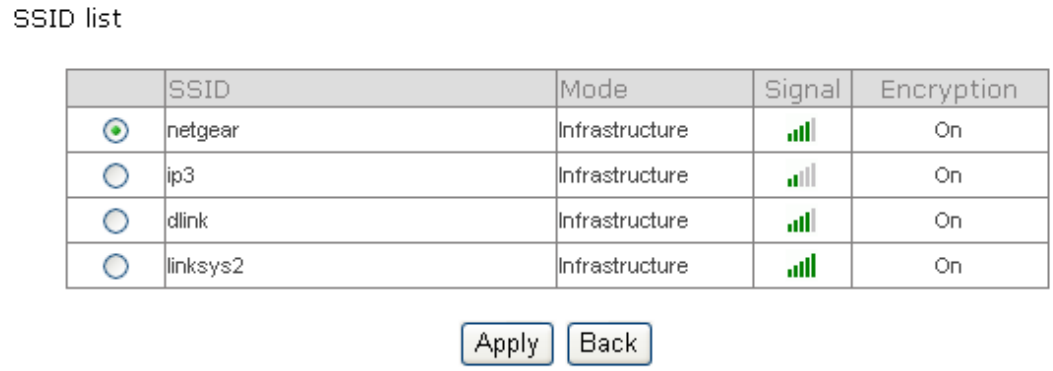
[WEP Key] It's the password of the router.

Also users can manual input the info. As shown below.



When select **Infrastructure** mode. *See figure above.*

[Security mode] Security mode is not only WEP64bit or WEP128bit but also WPA-PSK or WPA2-PSK.
[Encryption type] TKIP and AES.
[WPA key]Type 8-63 characters as password.
[Re-type WPA key] Re-confirm the password.



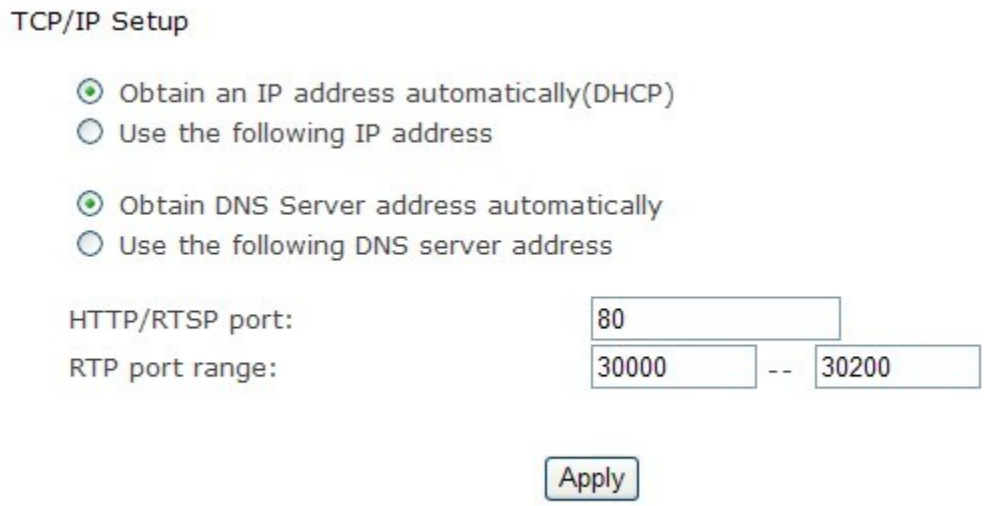
When click **search** ,see figure above.
[SSID] select the network name you searched .
[Mode] Infrastructure mode and Adhoc mode
[signal]It show out the strength of signal
[Encryption] on and off.

Click **Apply** to save changes.
Click **Test** to test whether connection is successful.

Note: *These settings have to match those of your access point or router. Please consult your access point or router manual on how to verify or modify these settings.*

TCP/IP Setup

The camera is set up to obtain the IP address automatically (DHCP) by default.
Also, users can choose to set the WLAN IP static.



Obtain an IP address automatically(DHCP):
If your network supports a DHCP server (e.g. router) select this option to have the IP address is assigned automatically.
If you select **Obtain an IP address automatically** you should select **Obtain a DNS Server address automatically.**

Use the following IP address:
Select this option when a fixed IP is required.
[IP address] Type the IP address of your camera.
[Subnet mask] Type the subnet mask.
[Default gateway] Type the default gateway.

Obtain DNS Server address automatically:
If your network supports a DHCP server (e.g. router) select this option to have the DNS Server address is assigned automatically.

Use the following DNS server address:
[Primary DNS IP address] Type the IP address of the primary DNS server.
[Secondary DNS IP address] Type the IP address of the secondary DNS server, if necessary.

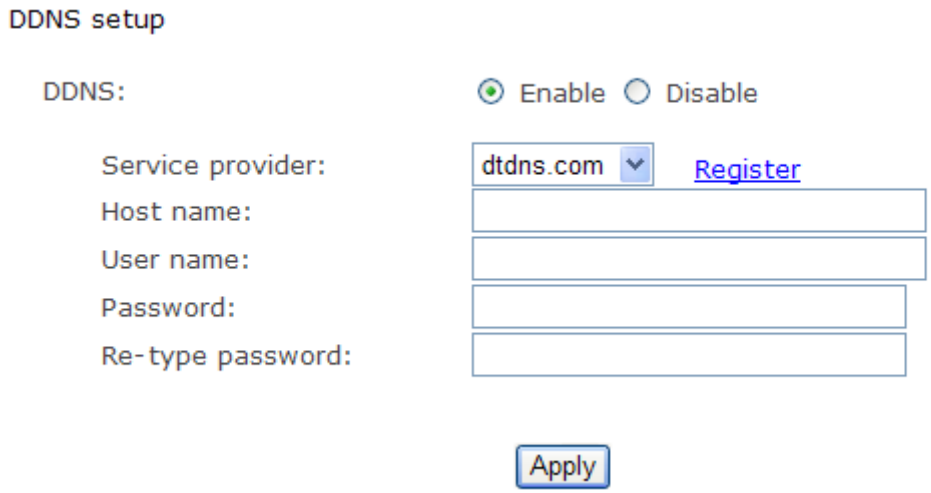
[HTTP/RTSP port]
The default HTTP port number is 80, it is also be used as RTSP port.

[RTP port range] It is for UPnP port forwarding, 1 camera actually use 2 RTP ports, one for video, the other for audio. (See UPnP setup)

[HTTP/RTSP Authentication method] Select Basic Authentication or Digest Access Authentication.

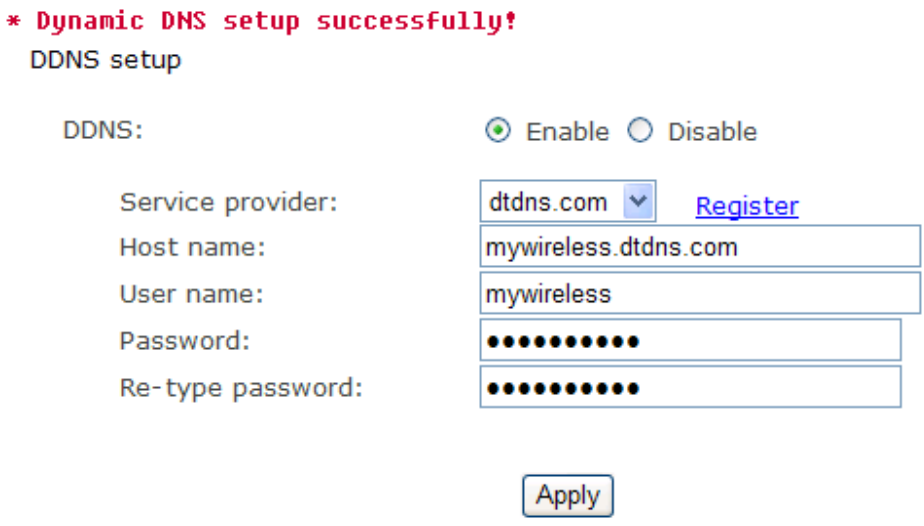
DDNS Setup

Dynamic DNS (DDNS) is simply a way of using a static hostname to connect to a dynamic IP address. When connected to your ISP, you are assigned a temporary IP address. DDNS services keep track of your IP address and route your **Domain name** to that address when you wish to connect to the camera from a remote location.



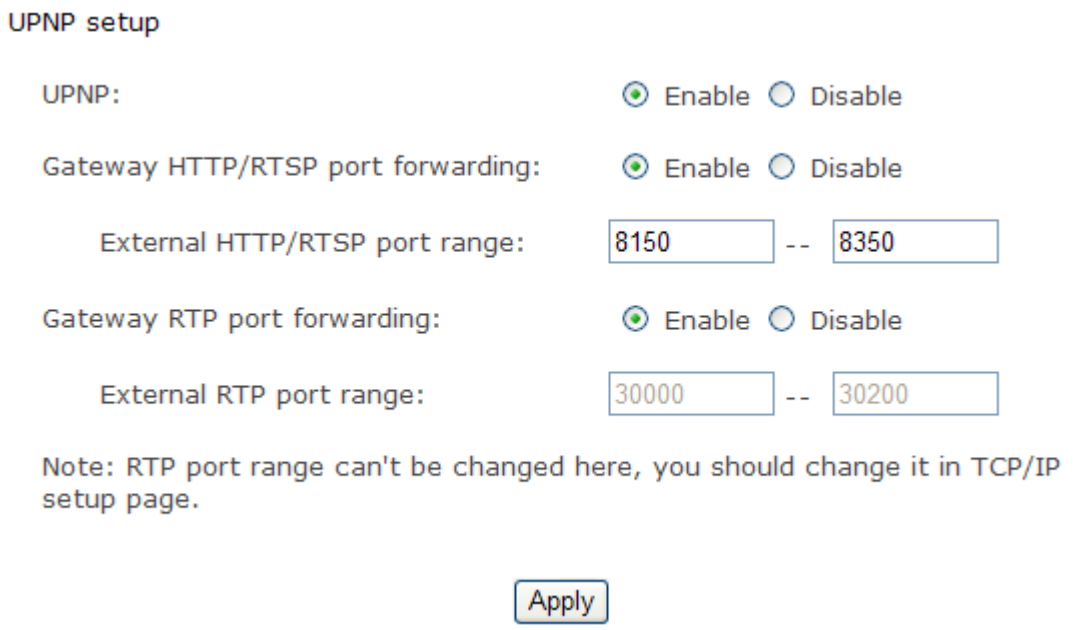
[DDNS] Enable or disable DDNS connection.

How to add DDNS
1. **Enable** the Dynamic DNS function.
2. Select your preferred DDNS service provider from the list then click **Register**.
3. Enter the **Host Name** details and password supplied by your DDNS service provider when you registered.
4. Click **Apply** to confirm your settings.



UPNP Setup

The camera supports UPnP which is enabled by default. The router should support this function. Please see the features of the router.. (Nearly all routers support this function, except some really old routers.)
This function requires a Windows XP/Vista operating system. It is a quick way to discover the camera on your network. Please make sure that the UPnP function is enabled on your PC.



[UPnP] Enable or disable the UPnP function.

[Gateway HTTP/RTSP port forwarding] Enable or disable this function.

[External HTTP/RTSP port range] Using this port, automatically adds a port forwarding rule to a router via UPnP protocol. Please note that not all routers support this function. Refer to your router manual for further details.

If set port range is 8150~8350, camera will ask router to add a port forwarding rule automatically. In this rule, the internal port is camera default port 80, the external port is 8150, IP address is camera's IP. Use this setting, users can visit the camera from Internet through the router with this URL http://routeripaddress:8150.

If there are several cameras in Local Network, the first one which first be opened will use 8150 as external port, and second one will use 8151, third one use 8152, etc. Every camera will remember its port, it will preferentially use this port in next power on.

[Gateway RTP port forwarding] Enable this function, users can use mobile phone , RealPlayer or QuickTime Player to visit the camera from Internet through the router.

[External RTP port range] 30000—30200 default. (See TCP/IP setup)

Click **Apply** to confirm your setting.

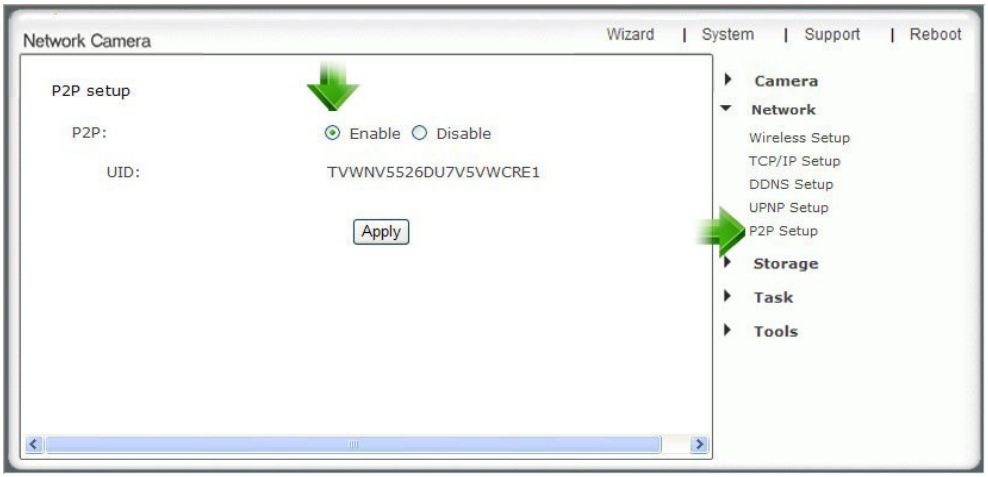
Click **System** at the top right of **Settings** page to show the **System information.** *See figure below.*

Status:	Disable
UPNP port forwarding	
Status:	Success
Gateway external IP address:	119.122.167.202
Gateway external port:	8153
Internet URL:	http://119.122.167.202:8153
Internet Connection	
Status:	connected
SD card	
Status:	Inside
Total:	1872 MBytes
Used:	0 MBytes
Available:	1872 MBytes
Current users	
admin	192.168.168.96

If DDNS setup successfully and go into effect, **Internet URL** will show DDNS host name instead.
See figure below for example.

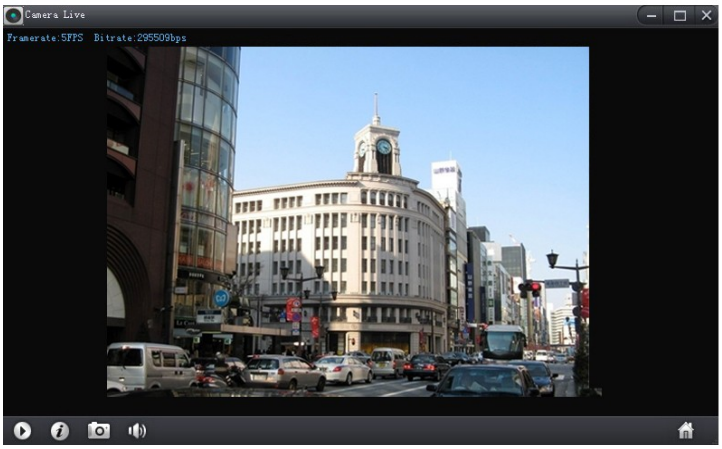
UPNP	
Status:	Success
Gateway external IP address:	121.35.132.14
Gateway external port:	8150
Internet URL:	http://mywireless.3322.org:8150

P2P Setup

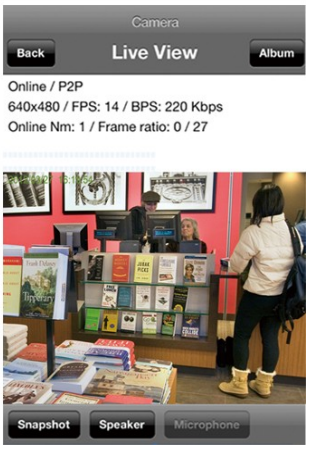


Click P2P Setup, then click Enable and apply to add P2P functions.
Now we can use P2P to view cameras on PC or iPhone, iPad and Android.
Only need to input **UID** and **password**.
Take viewing on PC and iPhone for example.

View on PC



iPhone



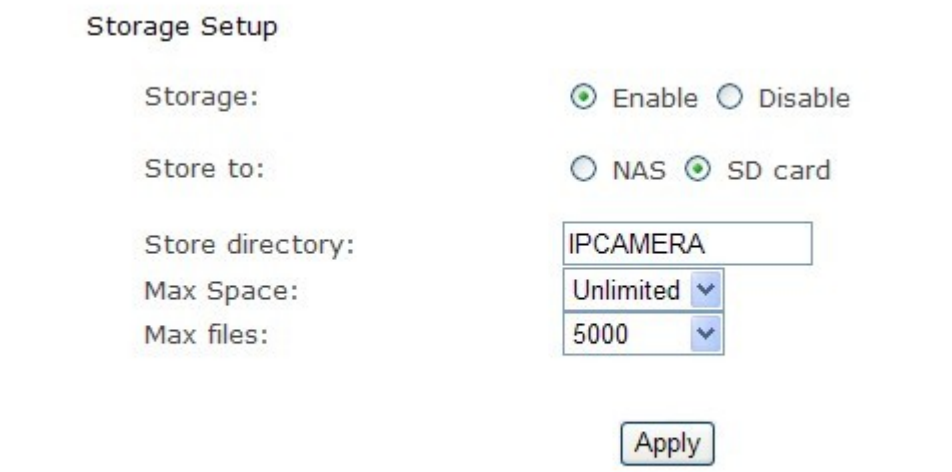
WPS Setup

Press the camera WPS button, you will see a yellow light on the Rj45 plug flashing slowly. Then press router's WPS button. In 2 minutes, the yellow light will be off. It's done.

If Wi-Fi is not connected, please try the steps again.

Storage

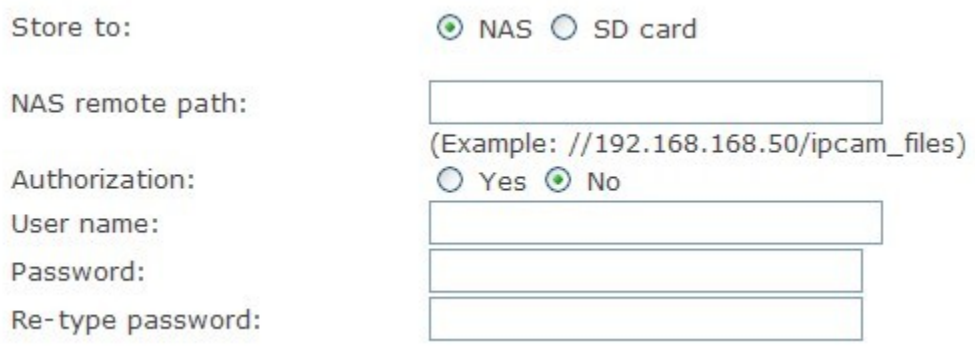
Storage Setup



[Storage] Select Enable
[Store to] NAS or SD Card. NAS is the Network Access Storage, like a on-line hard drive, Users need to set up themselves. The Camera has the SD card slot.
[Store directory] The directory that Videos will be saved to.
[Max Space] 64GB for SD Card. 2TB for NAS. (The capacity of all videos)
[Max files] The Max quantity of all the videos.

Click **Apply** to confirm your setting.

Store to NAS



[Store to] Select NAS
[NAS remote path] IP address of the NAS. Example://192.168.168.50/ipcam_files
[Authorization] Select Yes.
[User name] Input the NAS user name.
[Password] Input NAS password
[Re-type password] Re-type the NAS password.

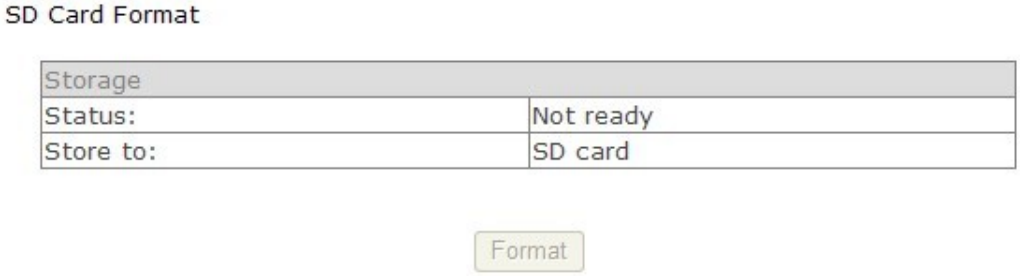
Click **Apply** to confirm your setting.

Browse Storage

In the **Browse Storage** window, we can browse, download and delete videos and pictures.

Format SD Card

To format SD card, all files will be deleted.



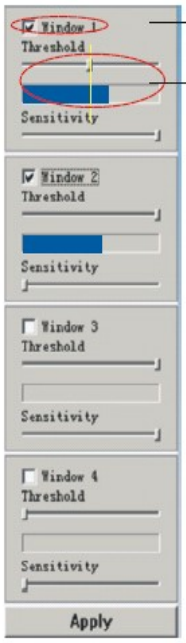
Task

Motion Detection

Motion Detection can trigger an alarm and sends images or video via e-mail or FTP (File Transfer Protocol). You can set up to four different Motion Detection windows.

[Window] Check this box to enable the window.
[Threshold] Set the threshold bar to the amount of motion required to trigger the alarm.
[Sensitivity] Set the measurable difference between two sequential images that would indicate motion.

Click **Apply** to confirm your setting.



Checked the window box to enable this window.

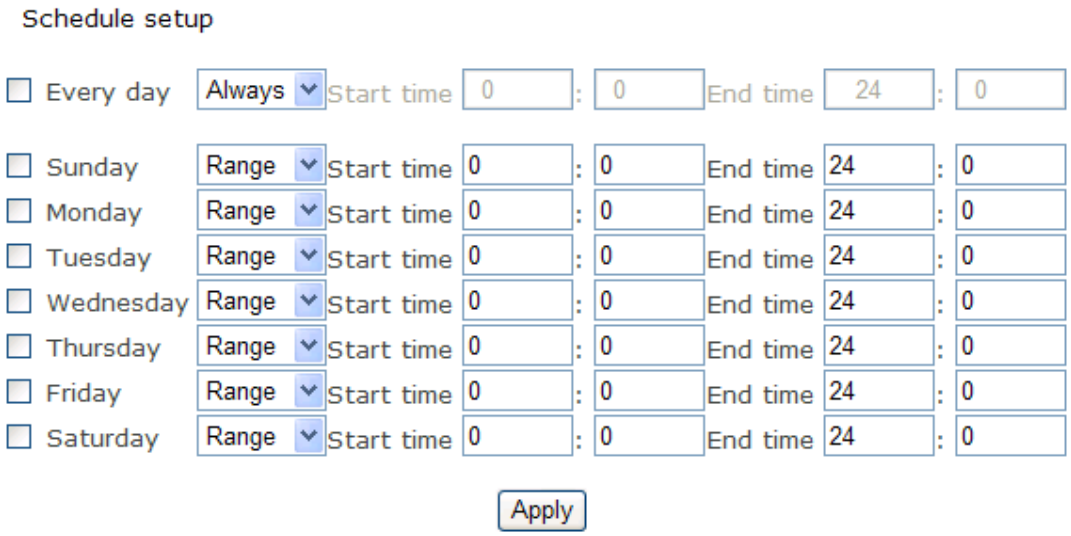
Threshold bar and indicator

Note:

1. *When you enable, disable, relocate or resize a window click **Apply** to for the new settings to be enable.*
2. *Only the checked window area will trigger the alarm.*
3. *Moving the Threshold bar to the left or the Sensitivity bar to the right will increase the sensitivity of when the alarm is triggered.*
4. *To resize a window simply drag one of its corners.*
5. *To move a window click and drag on the top bar of the window (window name).*

Schedule Setup

Alarm Sending, **Periodical Sending** and **Buffer Sending** sends images via e-mail or FTP according to schedule setup.



[Every day] Select every day or not. If not, you'll see the day list.
[Sunday ~ Saturday] Select Sunday ~ Saturday or not.
[Always] Enable in any time.
[Range] Enable between start time and end time.
[Except] Enable except start time to end time.

Click **Apply** to confirm your setting.

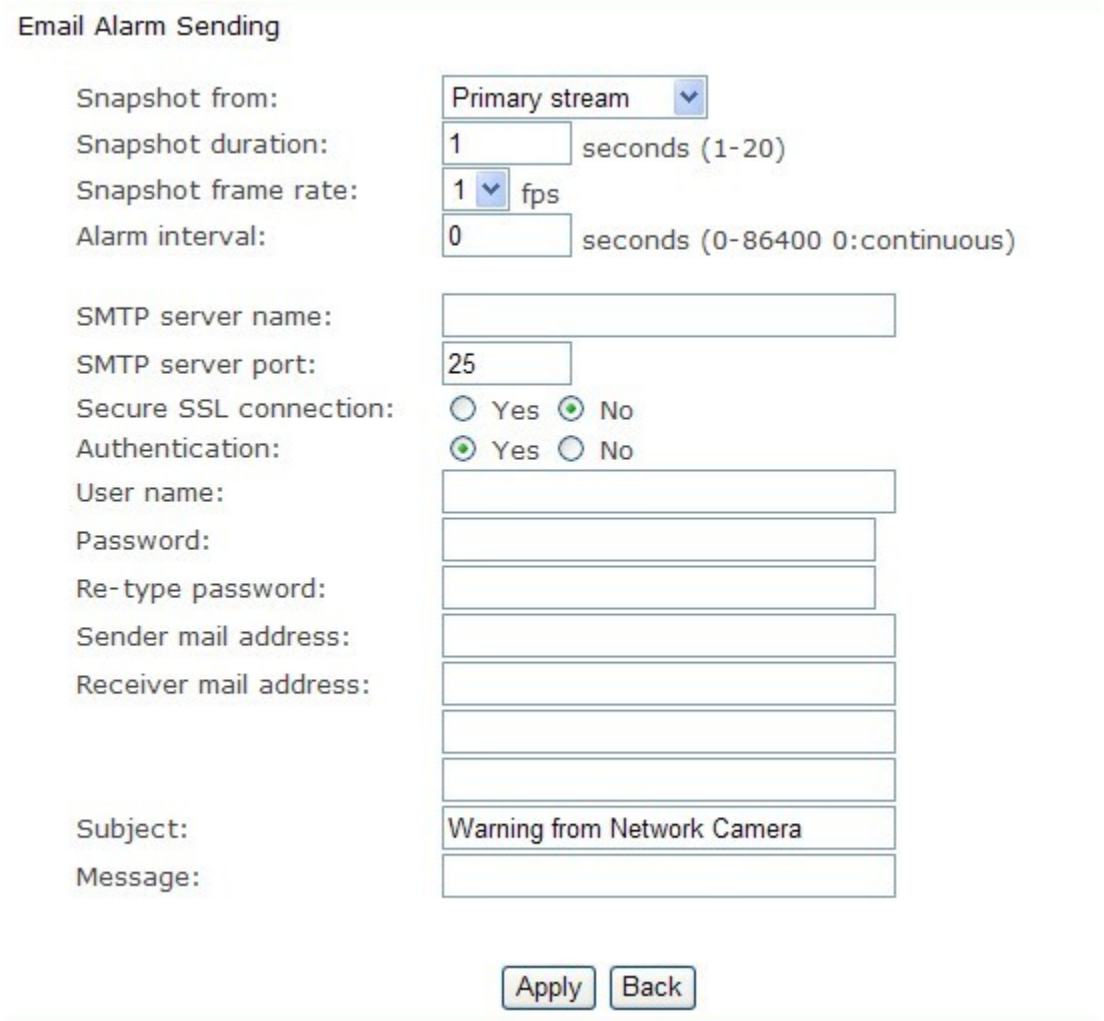
Task Management

Task Management

No.	Enable	Shedule	Task
1	☐	Always	Email alarm sending
2	☐	Always	Email periodic sending
3	☐	Always	FTP alarm sending
4	☐	Always	FTP periodic sending
5	☐	Always	HTTP alarm sending
6	☐	Always	HTTP periodic sending
7	☐	Always	Snapshot to storage on alarm
8	☐	Always	Snapshot to storage periodically
9	☐	Always	Record to storage on alarm
10	☐	Always	Record to storage continuously
11	☐	Always	Send files in storage to FTP server

Apply

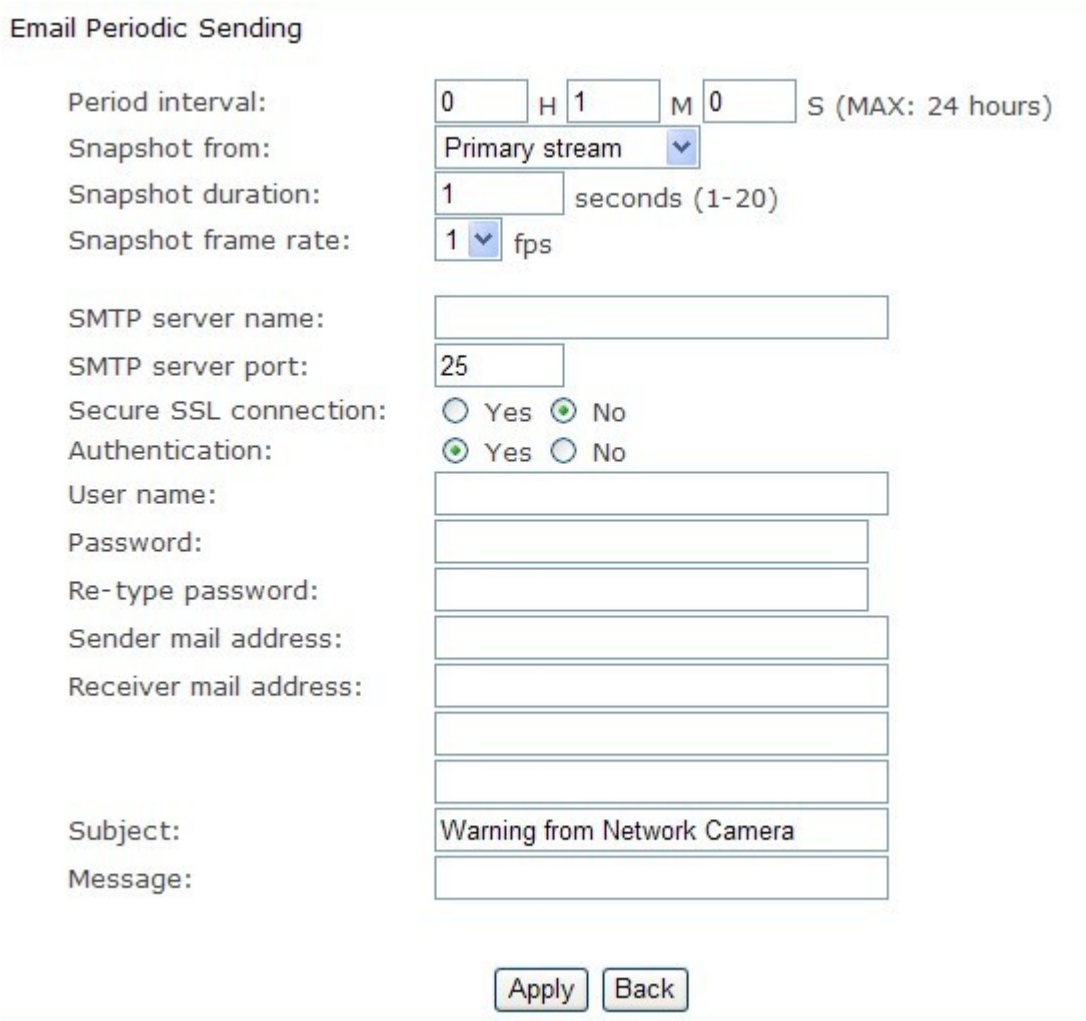
E-mail alarm sending



[Snapshot from] Select Primary stream
[Snapshot duration] For how long to reactivate the function again.
[Snapshot frame rate] Select how many snapshots per second.
[Alarm interval] Input the interval time
[SMTP server name] Input your E-mail's SMTP server name.
[SMTP server port] 25, as default.
[Secure SSL connection] Generally Select No. For Gmail, select Yes. It depends on the mail system.
[Authentication] Select Yes
[User name] Input your E-mail user name.
[Password] Input your E-mail password.
[Sender mail address] Input the sender mail address
[Receiver mail address] Input the receiver mail address.

Click **Apply** to confirm your setting.

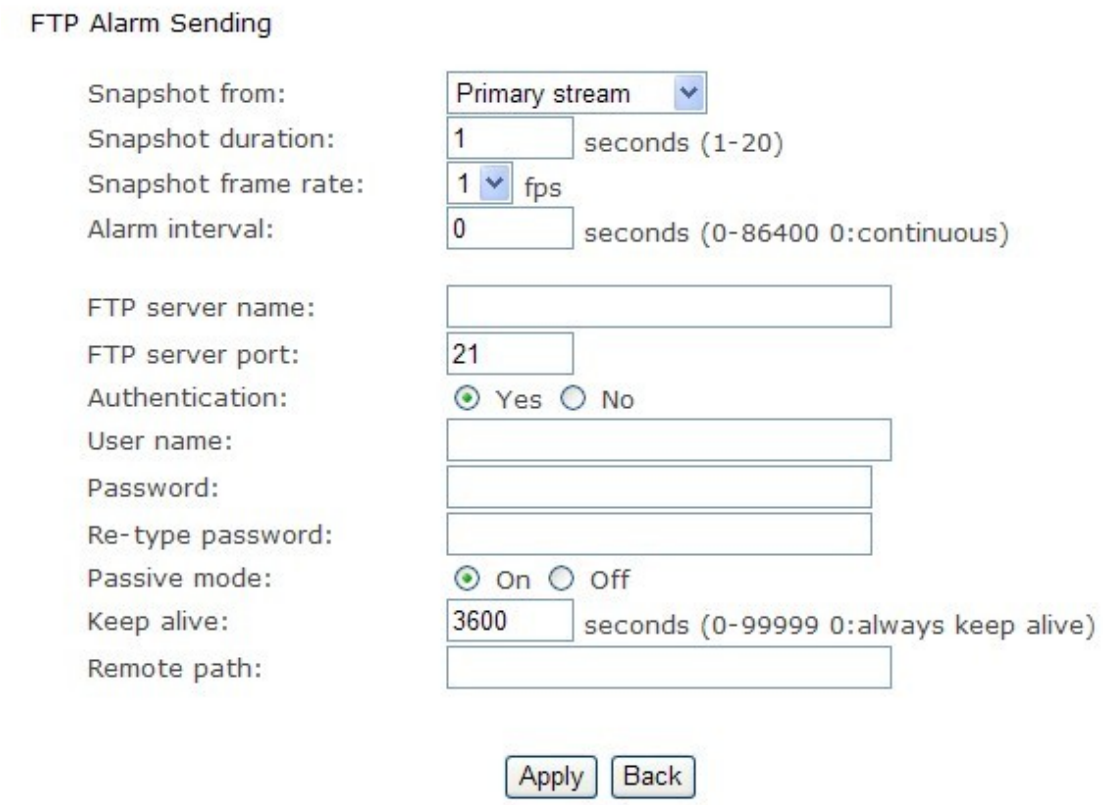
E-mail Period Sending



[Periodic interval] Input the interval time. Resend the E-mail periodically.

The rest setting is the same as E-mail Alarm Sending.
Click **Apply** to confirm your setting.

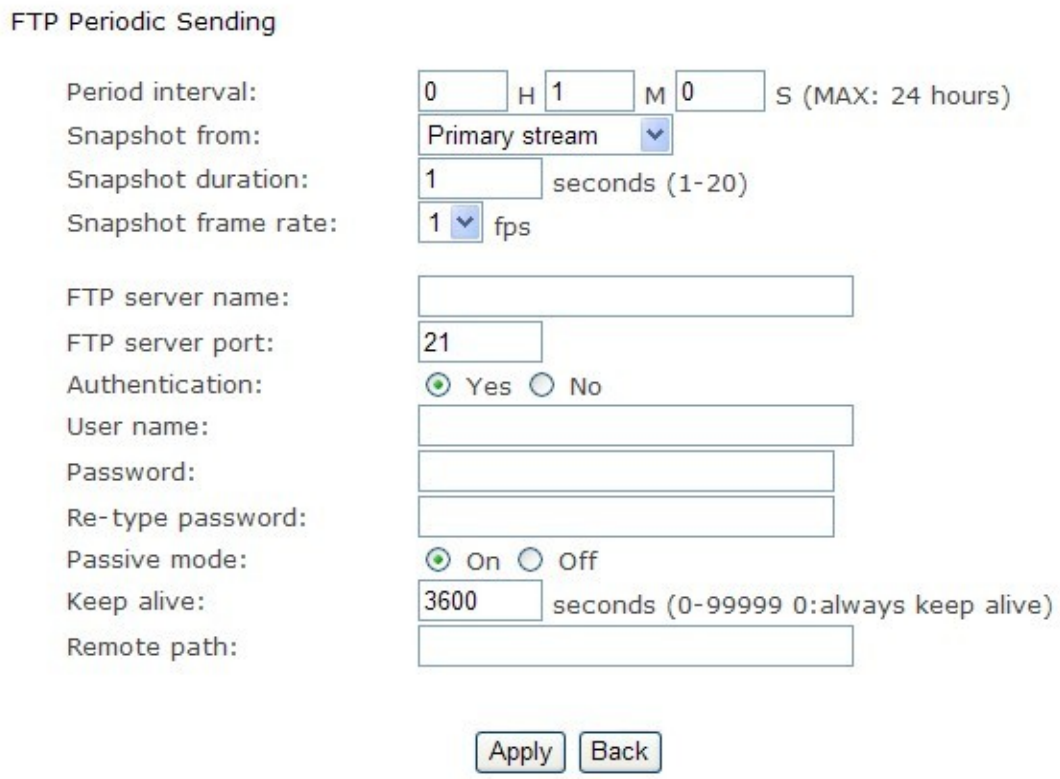
FTP alarm sending



[Snapshot from] Primary stream.
[Snapshot duration] For how long to reactivate the function again.
[Snapshot frame rate] Select how many snapshots per second.
I Alarm interval] Type the interval time of alarm.
[FTP server name] Input the FTP server name.
[FTP server port] As default 21.
[Authentication] Select Yes.
[User name] Type your FTP user name.
[Password] Type your FTP password.
[Re-type password] Re-type FTP password.
[Passive mode] Select on or off.
[Keep alive] Input the time.
[Remote path] Input the file directory.

Click **Apply** to confirm your setting.

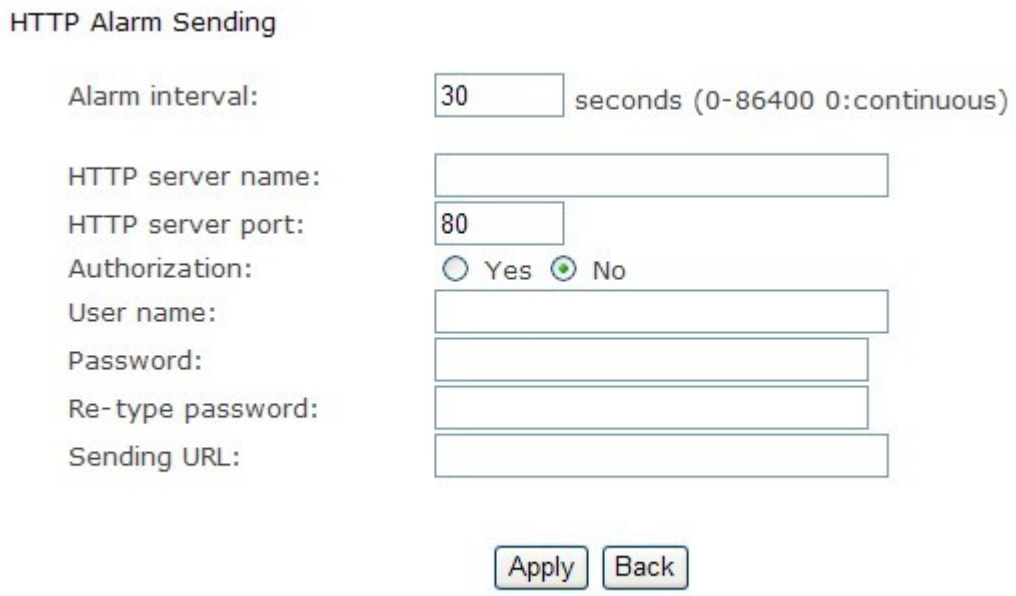
FTP periodic sending



[Periodic interval] Input the interval time.

The rest setting is the same as FTP Alarm Sending.
Click **Apply** to confirm your setting.

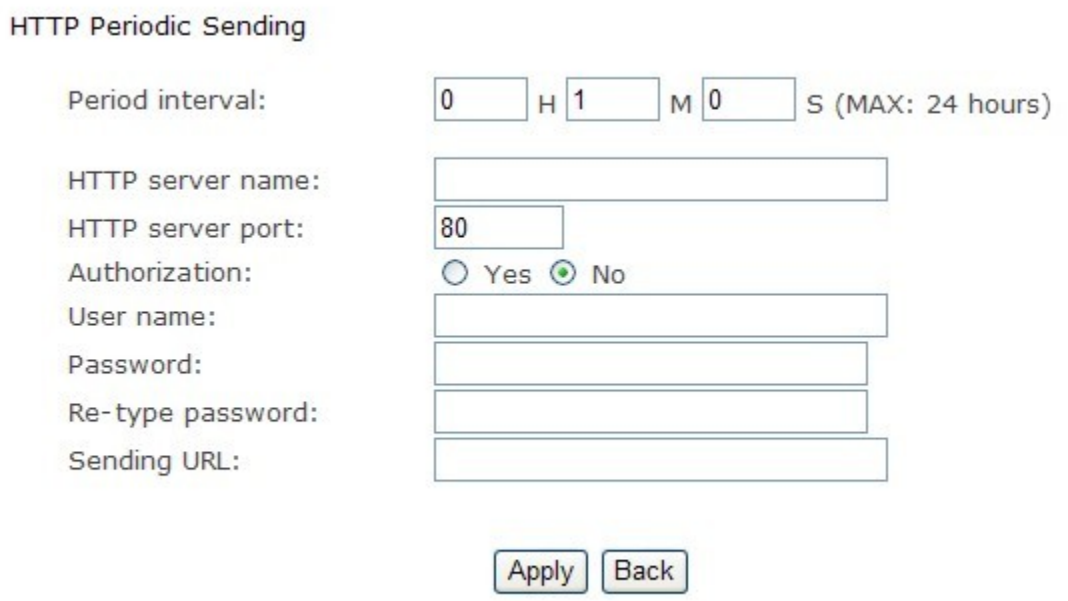
HTTP alarm sending



[Alarm interval] Input the FTP server name.
[HTTP server name] Input the HTTP server name.
[HTTP server port] As default 80.
[Authentication] Select Yes.
I User name] Type your HTTP user name.
[Password] Type your HTTP password.
[Re-type password] Re-type your HTTP password.
[Sending URL] Input Input the URL, the camera will give an alarm to it.

Click **Apply** to confirm your setting.

HTTP periodic sending

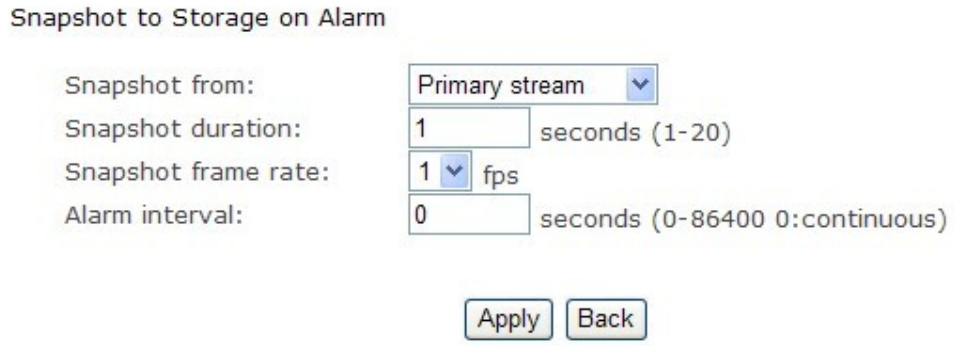


[Period interval] Input the interval time.

The rest setting is the same as HTTP Alarm Sending.

Click **Apply** to confirm your setting.

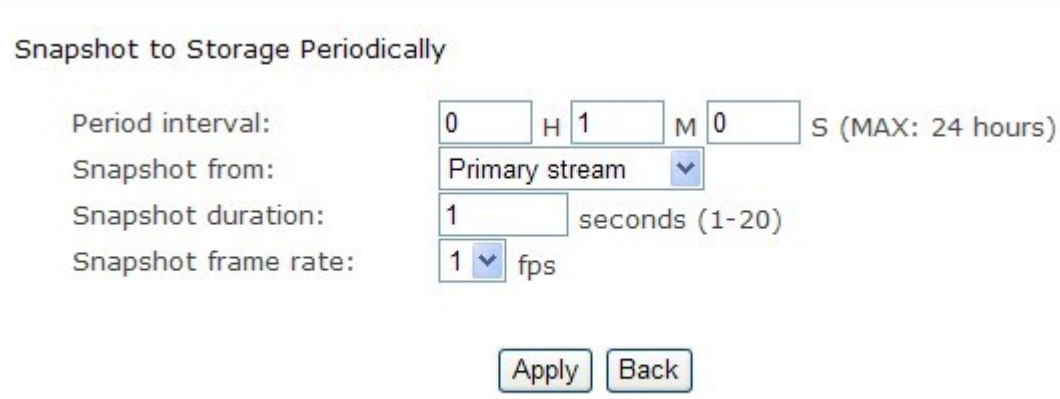
Snapshot to storage on alarm



[Snapshot to storage on alarm] Select Primary stream.
[Snapshot duration] Select the time.
[Snapshot frame rate] Select the frame.
IAlarm interval] Input the interval time.

Click **Apply** to confirm your setting.

Snapshot to storage periodically

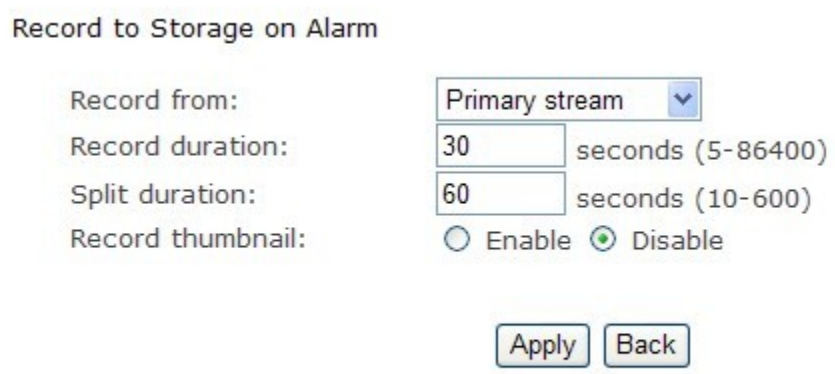


[Period interval] Input the interval time.

The rest setting is the same as Snapshot to storage on alarm.

Click **Apply** to confirm your setting.

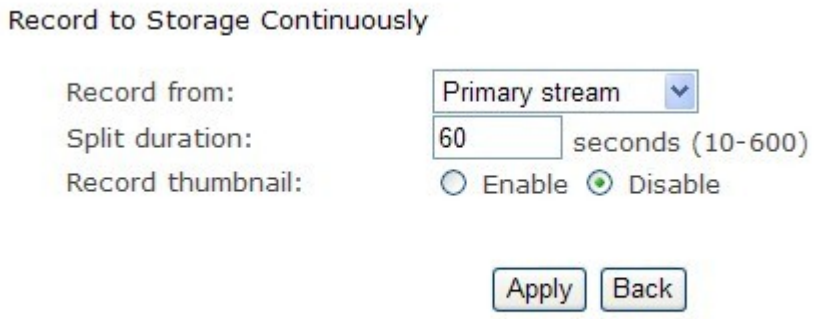
Record to storage on alarm



[Record from] Primary stream
[Record duration] Input the duration time.
[Split duration] Input the split duration time.(The videos will be split.)
[Record thumbnail] Select Enable or Disable.

Click **Apply** to confirm your setting.

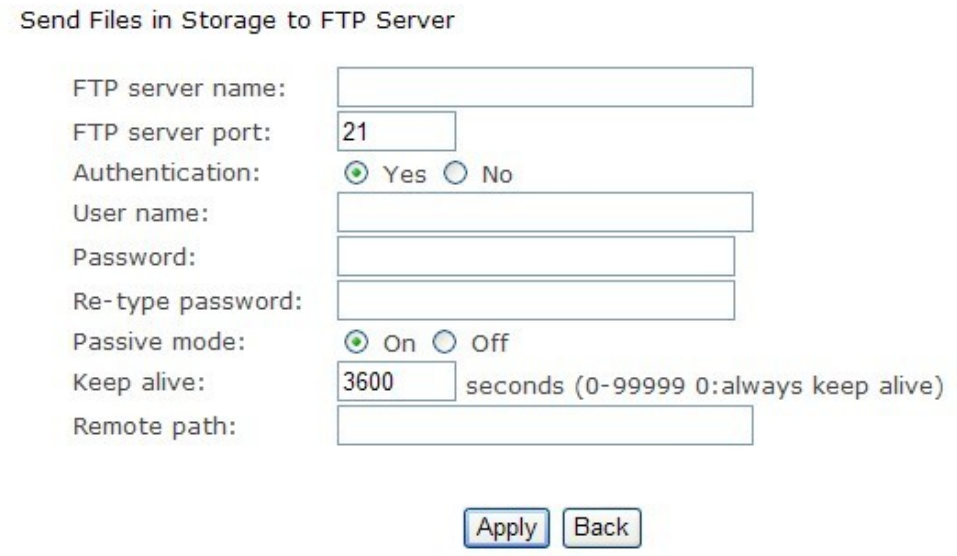
Record to storage continuously



[Record from] Select Primary stream.
[Split duration] Input the split duration time.(The videos will be split.)
[Record thumbnail] Select Enable or Disable.

Click **Apply** to confirm your setting.

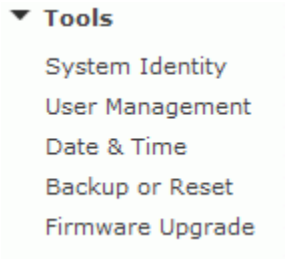
Send files in storage to FTP server



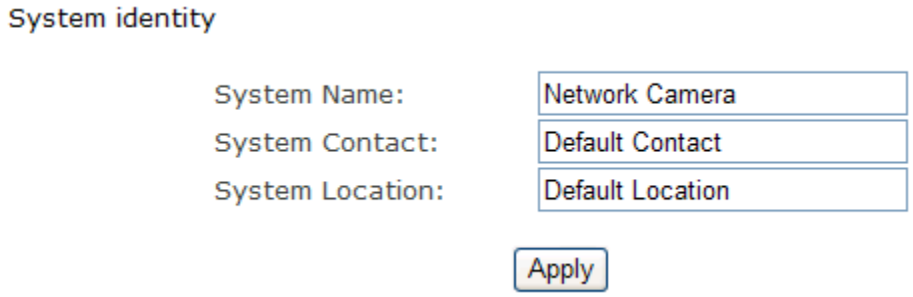
[FTP server name] Input the FTP server name.
[FTP server port] As default 21.
[Authentication] Select Yes.
lUser name] Type the FTP user name.
[Password] Input the FTP password.
lRe-type password] Re-input the FTP password.
[Passive mode] Select on or off.
[Keep alive] Input the time.
[Remote path] Input the file directory.

Click **Apply** to confirm your setting.

Tools

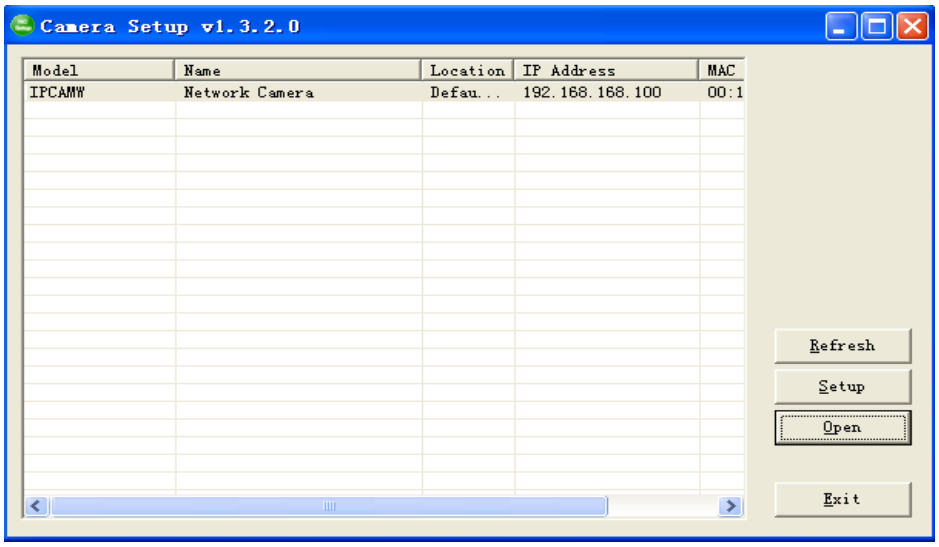


System Identity

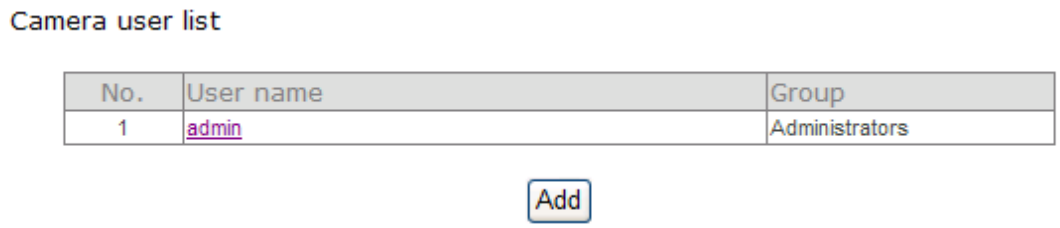


[System Name] Type a name to easily identify the camera.
[System Contact] Type the contact name of the administrator of the camera.
[System Location] Type the location of the camera.

TIP: *The information you fill in can be displayed on the camera. It can help to distinguish different Network Cameras in the network. See figure below.*



User Management

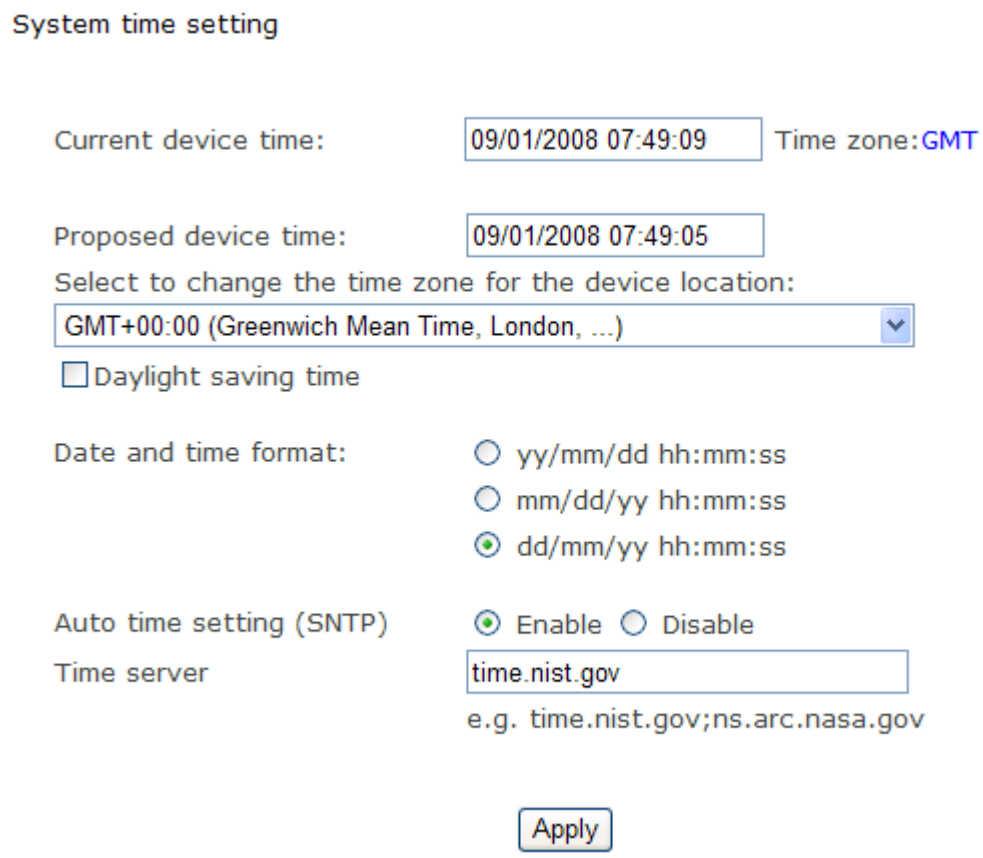


[Add] Up to 64 users (including the admin) can **created**
Note:
1. A maximum of 16 users are allowed to access the camera simultaneously.
2. As the number of simultaneously users increase, the overall performance will decrease. This is dependant on the Network bandwidth.

Adding users
1. Click **Add** on the **Camera User List** page.
2. Enter the User name, Password and re-confirm the password then click **Add**.

To edit a user's password, click on the user name then enter the new password for that user twice and click **Save.** To delete a user, click on the user name then click **Delete**.

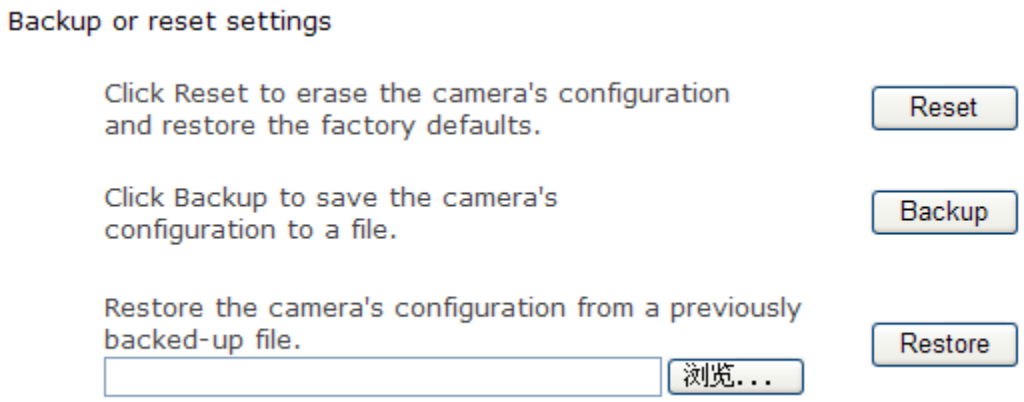
Date & Time



[Current device time] Internal time for camera.
[Proposed device time] PC system time. On clicking **Apply** the internal time of the camera will be changed to this time.
[Select to change the time zone for the device location] choose proper time zone.
[Daylight saving time]Daylight Saving Time (or summertime as it is called in many countries) is a way of getting more light out of the day by advancing clocks by one hour during the summer.
[Date and time format] Select date and time format.
[Auto time setting(SNTP)] Enable or disable this function.
[Time server] Type one SNTP server name in the box.
Click **Apply** to confirm your settings.

Note:
1. If the SNTP server is not found the camera's time will be synchronized with the PC time.
*2. The **camera** has a built-in RTC(Real-time Clock) that keeps track of the time even when power is disconnected.*

Backup or Reset


Backup or reset settings
Click Reset to erase the camera's configuration and restore the factory defaults.
Reset
Click Backup to save the camera's configuration to a file.
Backup
Restore the camera's configuration from a previously backed-up file.
浏览...
Restore

[Reset] Click **Reset** to initialize the camera to default factory setting. All users and settings will be lost, requiring you to reconfigure the camera.

[Backup] Click **Backup** to backup the current configuration of the camera for future reference.

[Browse...] Click **Browse...** to search for a backup configuration you wish to upload to the camera, then click **Restore**.

Note:
Do not turn off the power during the Reset, Backup or Restore functions since this might corrupt the camera's firmware

Tip:
The camera can also be reset to the default settings by pressing the reset switch on the side of the camera.

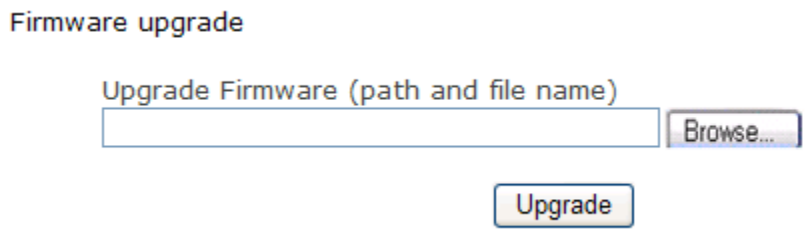
Firmware Upgrade

From time to time a new firmware may be released. In order to upgrade your camera's firmware you first need to download this firmware from Network Camera Technical Support Site.

1. Click **Continue**.

Firmware upgrade
Warning:
Upgrading the camera to a new firmware will erase your current configuration.
Current firmware version is: 5.08 (build 20120718)
To proceed click continue.
Continue
Back

2. Click **Browse...** to search for the newest Firmware you downloaded, and then click **Upgrade**.



3. Click **Reboot** when the upgrade terminates.

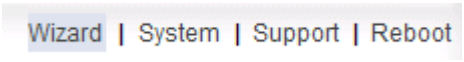
IMPORTANT:

*** Do not unplug or power off the camera while the upgrade is in progress.**

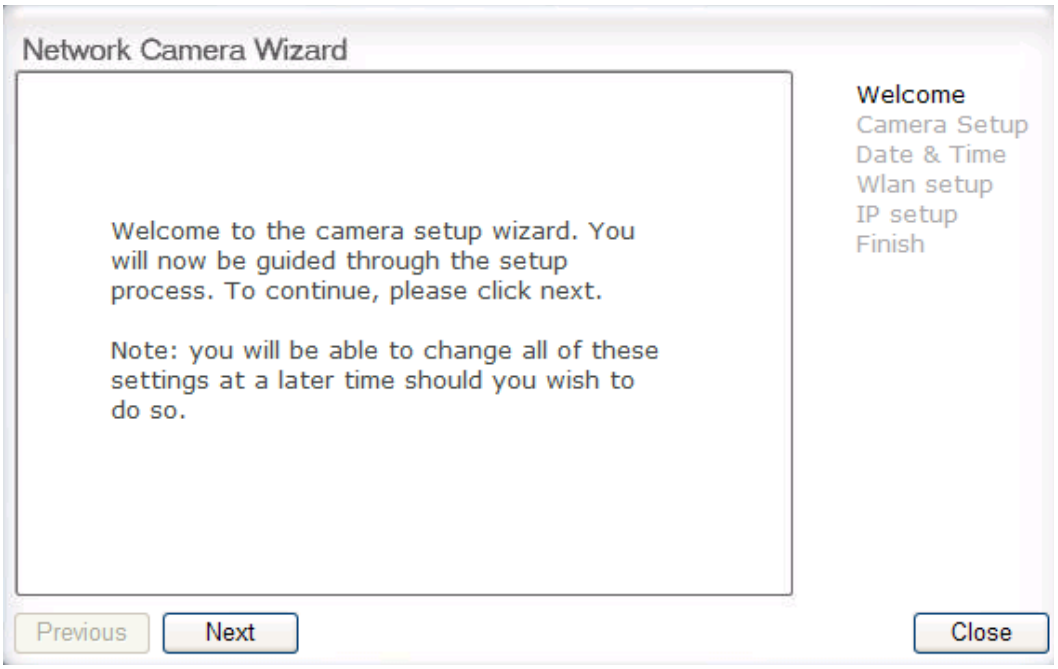
SPEEDREAD YOUR NETWORK CAMERA

Wizard

In order to facilitate the setup of the camera there is a **Wizard** that helps non technical users setup the camera easily. Click on Wizard at the top of the window to launch the wizard.

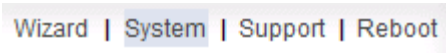


The Quick setup interface will pop up. Follow the simple instructions on the screen and enter the required details, clicking next to proceed to the **Next** page.


Network Camera Wizard
Welcome to the camera setup wizard. You will now be guided through the setup process. To continue, please click next.
Note: you will be able to change all of these settings at a later time should you wish to do so.
Welcome
Camera Setup
Date & Time
Wlan setup
IP setup
Finish
Previous
Next
Close

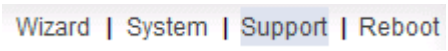
System

Click **System** to see over system information about your camera. The data of the software activity of the camera and recorded in this. It includes data that are useful when a problem occurs.



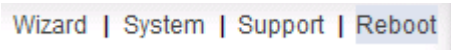
Support

Click **Support** to see the support information



Reboot

Click **Reboot** to restart the camera. Rebooting the camera will retain all the settings and configurations.



ADVANCED SETTINGS

Port Forwarding

The UPnP Setup of camera show a method of Port Forwarding（see page 31 for details），but some routers maybe can't support UPnP Port Forwarding, therefore, users need to configure Port Forwarding manually.

Firewall security features built into the router may prevent users from accessing the camera over the Internet. The router connects to the Internet over a series of "ports". The default ports used by the camera are usually blocked from access over the Internet, therefore, these ports need to be made accessible. This is achieved using the Port Forwarding function on the router. The ports used by the camera must be opened through the router for remote access to your camera. Check your router's user manual for specific instructions on how to open and route ports on you router.

Important: Some ISPs block access to port 80 and other commonly used Internet ports. Check with your ISP in order to open the appropriate ports. If your ISP does not pass traffic on port 80, you will need to change the camera's default port number from 80 to a different number such as 9000.

Viewing Your Camera

To access the camera from a computer on your local network, simply enter the IP Address of the Camera followed by a colon and the camera's port number. It is not necessary to enter the colon and port number if you are using the camera's default port 80.

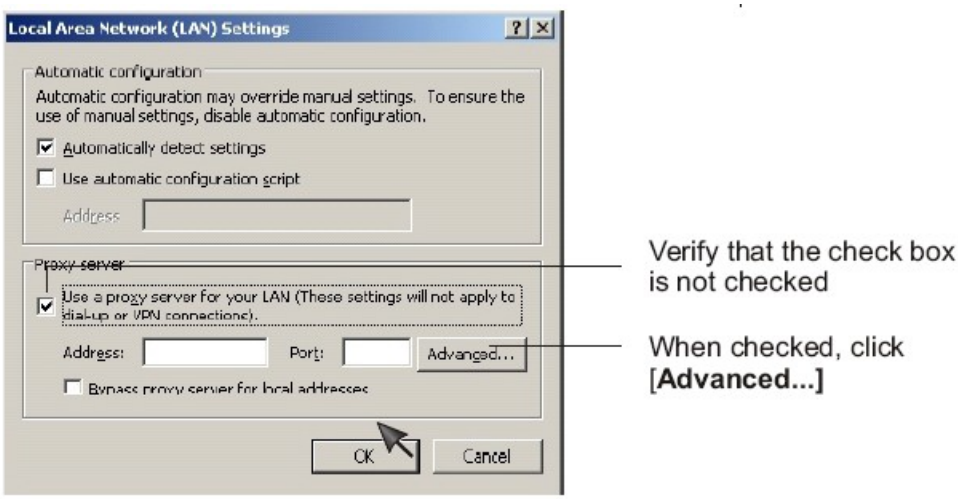
To access the camera from the internet, type the external IP Address of the router, followed by a colon, and the port number of your camera (e.g., Http://210.118.166.68:9000).

Proxy Server Setting

A proxy server may prevent you from connecting to the camera in some corporate environments. The web browser can set up the IP address communication without using a proxy server. Consult your ISP or network administrator for further details.

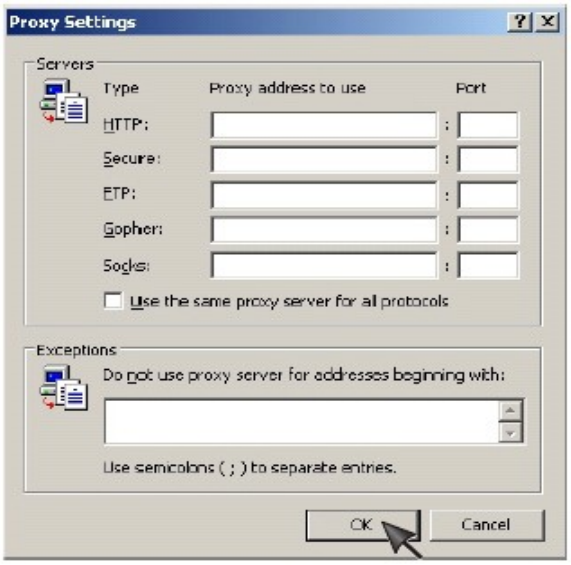
Note: *A proxy server is generally used to maintain security on a network when connected to the internet. The proxy server may cause lack of image quality and delays in refresh intervals. Consult your ISP or network administrator for further details.*

1. Start **Internet Explorer**.
2. Select **[Tools]** –> **[Internet Options...]** –> **[Connections]** tab and click **[LAN Settings]**.
Verify that the **Use a proxy server** check box is not checked. When checked, click **[Advanced...]**.


Local Area Network (LAN) Settings
Automatic configuration
Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.
Automatically detect settings
Use automatic configuration script
Address
Proxy server
Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections).
Address:
Port:
Advanced...
Bypass proxy server for local addresses
OK
Cancel
Verify that the check box is not checked
When checked, click [Advanced...]

When not checked, click **[Cancel].** Your proxy server settings should not cause any problems.

3. Enter the IP address of your camera into the **Do not use proxy server for addresses beginning with** data field.



4. Click **[OK]** on all of the opened windows.

Reset the camera

There are two ways to reset the camera back to its factory defaults:

1. Press the **Reset** button on the side of the camera through the pin hole.

2. Through the camera setup under the heading **Backup or Reset.**

DEFAULT SETTINGS

Camera

Camera Setup	
Privacy mode	Off
Moonlight mode	Off
Image rotation	Off
Light frequency	60Hz
Microphone	Enable
Mic Volume	10
Audio Bit Rate	G. 726 (16kbps)
Stream Setup	
Primary stream	Enable
Image size	640 x 480
Frame rate	30fps
H.264/MPEG4 bit rate	2048kbps
MJPEG quality	50
Snapshot quality	90
Audio	Enable
RTSP authentication	Enable
Secondary stream	Disable
Image size	320 x 240
Frame rate	30fps
H.264/MPEG4 bit rate	512kbps
MJPEG quality	50
Snapshot quality	90
Audio	Enable
RTSP authentication	Enable
Mobile stream	Enable
Image size	176 x 144
Frame rate	10fps
H.264/MPEG4 bit rate	64kbps
Snapshot quality	70
Audio	Disable
RTSP authentication	Enable
OSD Setup	
OSD	Disable
Transparent	Enable
Display	Display date and time
Night Vision Setup	
Infrared LED control	Auto
Black and white mode	Auto

Network

Wireless Setup	
SSID	Wirelessnc
Mode	Adhoc
Security mode	Off
TCP/IP Setup	
IP address	192.168.168.100
Subnet Mask	255.255.255.0
Default Gateway	Blank
Primary DNS IP Address	Blank

Secondary DNS IP Address	Blank
HTTP Port	80
RTSP port	554
RTP port range	30000—30200
Authentication method	Basic
PPPoE Setup	
PPPoE Dial-up	Disable
Service Name	Blank
User Name	Blank
Password	Blank
Re-type Password	Blank
DDNS Setup	
DNS	Disable
Service provider	dtdns.com
Host name	Blank
User name	Blank
Password	Blank
Re-type password	Blank
UPnP Setup	
UPnP	Enable
Gateway HTTP/RTSP port forwarding	Enable
External HTTP/RTSP port range	8150--8350
Gateway RTP port forwarding	Enable
External RTP port range	30000--30200

Alarm

Motion Detection	
Window 1	Blank
Window 2	Blank
Window 3	Blank
Window 4	Blank
Schedule Setup	
Every day	Always
Alarm Sending	
Alarm mode	Arm
FTP alarm sending	Disable
Trigger time	5
Trigger FPS	1
FTP server ID	1
Remote path	Blank
Snapshot from	Primary stream
Image file name	M
Suffix of file name	Date time
Effective period	Always
e-Mail alarm sending	Disable
Trigger time	1
Trigger FPS	1
e-Mail server ID	1
File attachment	On
Snapshot from	Primary stream
Image file name	M
Suffix of file name	Date time
Effective period	Always
HTTP event alarm sending	Disable

HTTP server ID	1
Sending URL	Blank
Use MAC address as URL suffix	Disable
Effective period	Always
Periodical Sending	
FTP periodical sending	Disable
Interval time	0H 1M 0S 0mS
FTP server ID	1
Remote path	Blank
Snapshot from	Primary stream
Image file name	P
Suffix of file name	Date time
Effective period	Always
e-Mail periodical sending	Disable
Interval time	0H 1M 0S 0mS
e-Mail server ID	1
File attachment	On
Snapshot from	Primary stream
Image file name	P
Suffix of file name	Date time
Effective period	Always
HTTP periodical sending	Disable
Interval time	0H 1M 0S 0mS
HTTP server ID	1
Sending URL	Blank
Use MAC address as URL suffix	Disable
Effective period	Always
Buffer Sending	
Image buffer	Disable
Buffer time	20
Buffer FPS	4
Snapshot from	Primary stream
Image file name	Blank
Suffix of file name	Date time
FTP buffer sending	Disable
FTP server ID	1
Remote path	Blank
Estimate sending time	100
Effective period	Always

Alarm Server

FTP Server	
FTP server ID	1
FTP Server Name	Blank
FTP Server Port	21
Anonymous	No
User Name	Blank
Password	Blank
Re-type Password	Blank
Passive Mode	On
Keep alive	3600
e-Mail Server	

e-Mail server ID	1
SMTP Server Name	Blank
SMTP Server Port	25
Secure SSL connection	No
Authentication	Yes
User Name	Blank
Password	Blank
Re-type Password	Blank
Sender E-Mail Address	Blank
Receiver E-Mail Address	Blank
	Blank
	Blank
Subject	Warning from Network Camera
Message	Blank
HTTP Server	
HTTP server ID	1
HTTP server name	Blank
HTTP server port	80
Authorization	No
User Name	Blank
Password	Blank
Re-type Password	Blank

Tools

System Identity	
System Name	Network Camera
System Contact	Default Contact
System Location	Default Location
User Management	
1	Admin/Administrators
Date & Time	
Current Device Time	Current PC Time
Time Zone	GMT
Proposed Device Time	Current PC Time
Daylight saving time	Disable
Date and time format	dd/mm/yy hh:mm:ss
Auto Time Setting (SNTP)	Enable
Time Server	Time.nist.gov
Misc Setup	
LED Control	On
Show FPS in Active Control	Off

SPECIFICATIONS

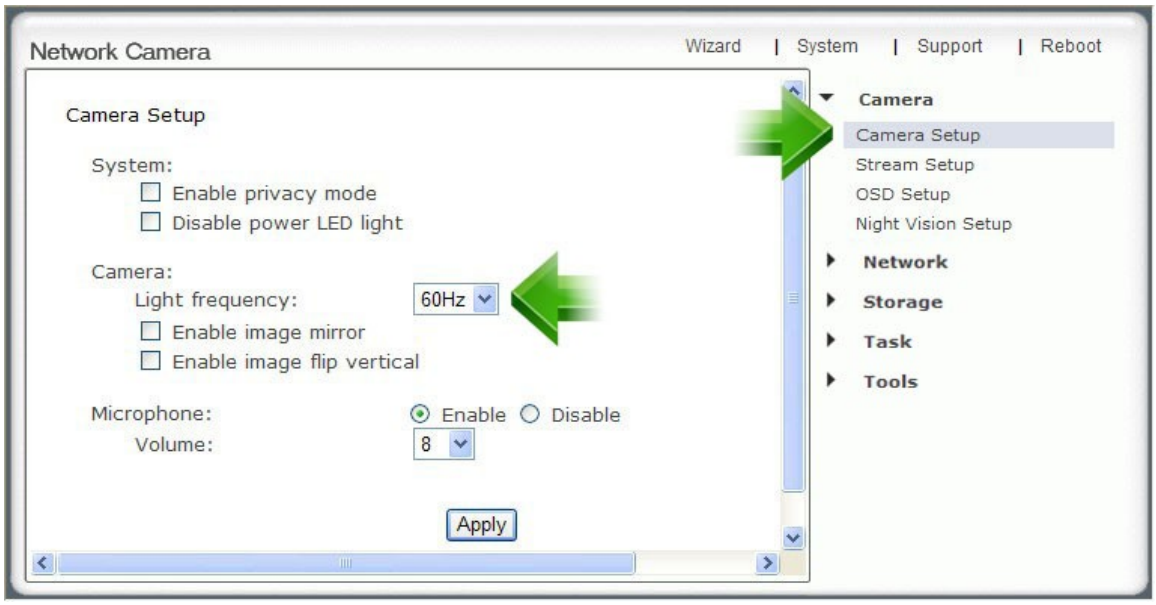
Camera	
Image device	1/4" CMOS
Pixels	310000
White Balance	Auto
Gain andExposure	Auto
Viewing angle	Horizontal:60°, Vertical:45.0°
Focal length	F=4.3 mm
Aperture	F2.0
Min.Ilumination	1.0 Lux
Infrared LED	24
Night Vision Distance	12 m
Network	
Support	P2P
Image compression	H.264, MPEG-4, MJPEG
Image resolution	640x480(VGA), 320x240(QVGA), 160x120(QQVGA)
Max. frame rate	30fps @640x480 for 60Hz, 25fps @640x480for 50Hz
Aduio compression	AAC
Built-in microphone	Electret Condenser Microphone
Simultaneous viewers	16
Authentication	ID/Password, Administrator/General User (Up to 64)
Network protocols	TCP,UDP,IP,ARP,ICMP,DHCP,DNS,HTTP,FTP,SMTP,NTP,PPPoE,UPnP,DDNS
Stream type	HTTP, RTSP/RTP/RTCP, 3GPP
Network connection	Ethernet (10BASE-T/100BASE-TX)
Wireless LAN	
Wireless technology	IEEE802.11 b/g/n
Frequency	2.412-2.462GHz
Transmission speed	54Mbps/22Mbps/11Mbps/5.5Mbps/2Mbps/1Mbps (Auto Switch)
Security	WEP (64/128 bit), WPA-PSK(AES/TKIP), WPA2-PSK(AES/TKIP)
General	
Power requirements	DC 12V
Power consumption	3.75W
Operating temperature	-20 to +60℃ (-4 to +140℉)
Storage temperature	-20 to +60 °C (-4 to +140 °F)
Operating humidity	20 to 90%RH(Non-condensing)
Storage humidity	20 to 95%RH(Non-condensing)
Dimensions(W x D x H)	70 x 70 x 190 mm
Weight	700 g
Supplied accessories	AC adaptor (x1), CD-ROM(Softwares x3,User manual x1),Stand x1,Srew
PC system requirements	
Operating system	All Windows OS/Linux/iPhone/iPad/Android/Windows mobile/BlackBerry
Processor	Intel Pentium III, 1GHz or Higher
Memory	256MB RAM Minimum
Web browser	Chrome, Safari, Firefox, Opera, IE version 5.5 or later,and all major browsers

Frequently Asked Questions

If the Network Camera is not working properly, these suggestions might help you identify the problem. If the problem persists check the support pages on Network Camera Technical Support Site.

Problem	Cause and Remedy
Forget the IP address of network camera.	1. Use Camera Setup. 2. Use UPNP (for XP/Vista OS) 3. PPPoE IP Notification can send e-mail to your mailbox 4. Reset your Network to default IP address
Forget the password to access the setting interface.	Initialize the network camera by pressing the **RESET** button. Note that all configuration settings will be lost.
Wireless communication does not work.	1. Signal strength is weak. Relocate the camera or remove the obstacle around it. 2. Make sure the SSID and Encryption settings are identical. 3. Check for any interference from other equipment.
The picture viewing interface does not appear.	1. Check that your internet explorer settings allow you to download and install ActiveX controls. 2. Maximum 16 users are allowed to access the camera simultaneously through network. 3. Network traffic may prevent the viewing interface from appearing quickly. Wait for a while.
How many users can view the same camera at the same time?	16
How many cameras can we view in one window?	36
How many cameras can we view in the browser?	Countless. Depends on the network speed.
When the camera is viewing in the browser, can we use the same PC and view the same camera in another browser window?	No, the camera knows it's already open.
The color of the picture is strange.	Confirm the color setting of PC is 16 bits or more.
The unreadable characters are displayed.	Set the **Encoding** or the **Character Set** of the selected language on the web browser.
Can the camera support viewing in Mac, Linux OS?	Yes, In Mac, Linux OS, we support viewing in the website, using DDNS. The PC softwares only support all Windows OS so far.
Can the camera support viewing in Windows mobile, Blackberry, Nokia?	Yes. Open the browser, input the DDNS+/mobile, for example: **183.14.122.239:8150/mobile** Now we can view videos or pictures.

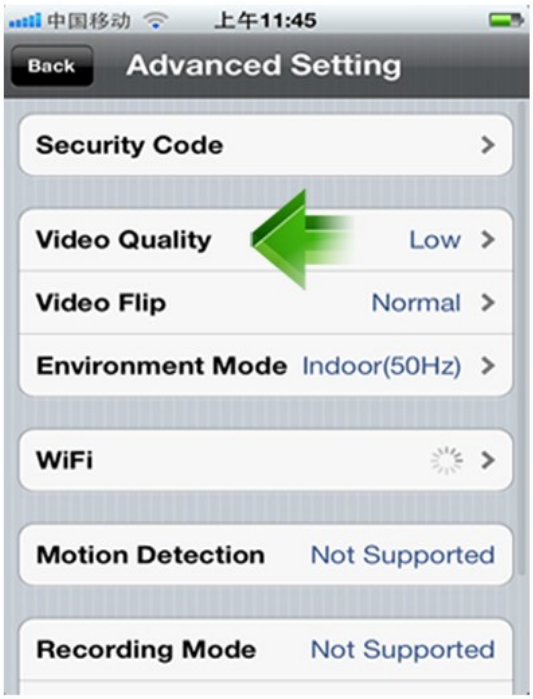
Why in Mac OS, the videos delay 2 seconds?	Because the Mac OS only support QuickTime player in browsers. So it delays 2 seconds. Other OS will not delay.
Why we see strips in the videos?	Because of the electricity. Some country like USA is 60Hz, yet Europe is 50Hz. For example：In USA, the camera should choose 60Hz, otherwise we will see strips in the videos. **The following picture is the steps.**
How to set the video quality in iPhone, iPad， Android devices.	**Please see the below steps.**



Video Quality Setting for iPhone, iPad

Press the **blue arrow**, you'll see:

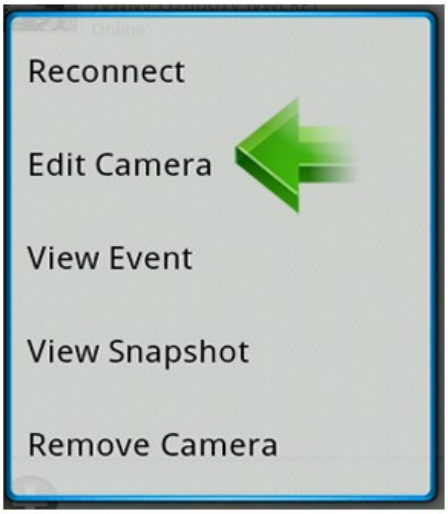
Press " **Advanced Setting** ", then appear:



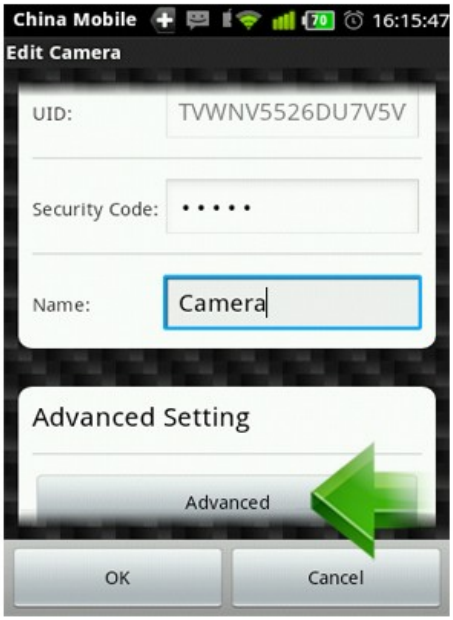
Slide to see the " **Video Quality** ", and press it. Then press " **Min** ".
Now, let's enjoy fluent videos!

Video Quality Setting for Android

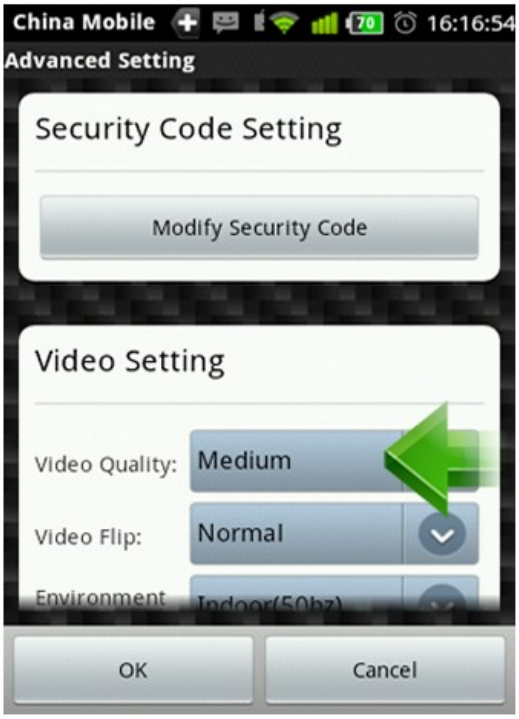
Long press the video till you see:



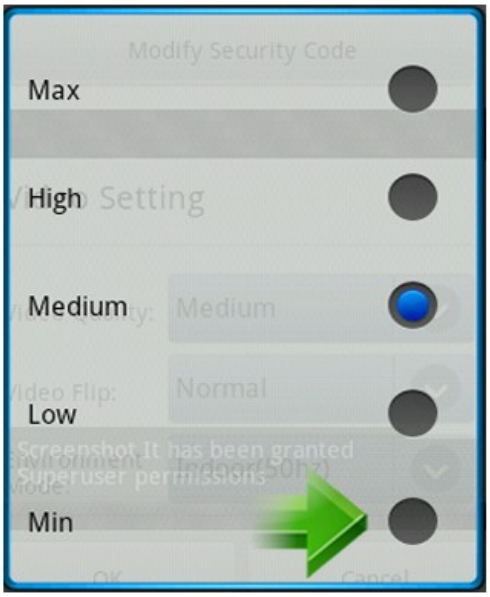
Press“ **Edit Camera** ”, you’ll see:



Press “ **Advance** ” you’ll see the Video Setting.



Press “ **Video Quality** ”, then press “ **Min** ”, Now enjoy the fluent videos!



GLOSSARY OF TERMS

1. Network Camera: A stand-alone device which allows users to view live, full motion video from anywhere on a computer network, even over the Internet, using a standard web browser.

2. JPEG: A standard image format, used widely for photographs, also known as JPG.

3. IEEE 802.11b/g/n: The specifications developed by the IEEE for wireless network technology. It provides 11 Mbps transmission in the 2.4GHz band usage.

4. WEP: Wireless **E**quivalent **P**rivacy. A security protocol for wireless network defined in the IEEE 802.11b/g/n standard. WEP aims to provide security by encrypting data over radio waves so that it is protected as it is transmitted from one end point to another.

5. Adhoc Mode: A wireless network system in which devices communicate directly with each other, without the use of a wireless router.

6. Infrastructure Mode: One of the wireless network system in which devices communicate with each other by first going through the wireless router.

7. IP Address: The unique 32 bit number assigned to each computer connected to the Internet. IP numbers are used by the TCP/IP protocol to route packets of data to their destinations.

8. TCP/IP: The collection of "protocols" underlying the functioning of the Internet. Each computer connected to the Internet is identified by a unique IP Address.

9. SMTP: Simple Mail Transfer Protocol.

10. FTP: File Transfer Protocol. Network cameras equipped with an embedded operating system, such as Linux, can use FTP to send images to a website.

11. DHCP: Dynamic Host Configuration Protocol is a set of rules used by communications devices such as a computer, router or network adapter to allow the device to request and obtain an IP address from a server which has a list of addresses available for assignment.

12 UPnP: Universal Plug and Play is an architecture for pervasive peer-to-peer network connectivity of intelligent appliances and wireless devices.

13. DDNS: DDNS is a method of keeping a domain name linked to a dynamic IP address with your Network Camera. You can set up your DDNS service and the device will automatically update your DDNS server each time it alter a different IP address.

14. Time server: A time server consists of a computer networking device that reads the actual time from a reference clock and distributes this information to its clients using a computer network.

15. WPA: Wi-Fi Protected Access (WPA and WPA2) is a class of systems to secure wireless (Wi-Fi) computer networks. WPA implements the majority of the IEEE 802.11i standard, and was intended as an intermediate measure to take the place of WEP while 802.11i was prepared.

EU Environmental Protection

Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice.